

Flight 93 Morgue Protocols



DISCLAIMER

This protocol was developed by DMORT III to document the morgue operation for the United Airlines Flight 93 response. It is intended to serve as an example of a morgue protocol and does not reflect a formal DMORT protocol. Portions of this document may be used to form the basis of a local disaster morgue protocol for use in a mass fatality plan.

TRIAGE PROTOCOL

Open bags delivered from scene.

Team sorts through materials to separate tissue from other material.

Airplane parts and other hardware are routed to *[AGENCY]*

Any items of evidentiary value (e.g., possible fragments of weapons) are route to *[AGENCY]*

Isolated personal effects are routed to *[AGENCY]*

Review human remains for further analysis.

- Tissue which will not yield any information in one or more of the following areas
 - Pathology (identification, pathology, injury, etc.)
 - Anthropology (age, sex, stature, ancestry, etc.)
 - Dental
 - Fingerprint analysis
 - DNA/identification -- Consult DNA Section for guidelinesis placed in a red barrel to be included in the common tissue disposition.
- Tissue with the potential for further identification is placed in a bag and the Victim Processing Record is checked in the left margin to indicate the stations where the specimen should be routed. **All specimens go to Photography, Radiography, and DNA.**
- The triage scribe signs and dates the Victim Processing Record. The specimen is routed to Admitting.

Human remains associated with personal effects are treated as follows:

- The PE is removed from the human remains as long as removal will not damage or compromise the remains. Notation about the clothing is entered into the comments section of the Victim Processing Record and the clothing is turned over to *[AGENCY]*.
 - If the human remains are suitable for further analysis, they are processed through the regular channels. *[AGENCY]* is informed that the human remains will be assigned a morgue number in Admitting, and they should accompany the remains to Admitting to obtain that number.
 - If the remains are not suitable for further analysis, they are placed in the common tissue red barrel.
- For remains that the PE cannot be removed without possible damage, notify the *[AGENCY]*, and leave effects associated with tissue. Mark "*[AGENCY]*" in red marker on the Victim Processing Record. Send specimen through procedures described above. *[AGENCY]* receives the specimen after all other relevant stations have signed off. ****These specimens may be expedited through the systems at the request of the *[AGENCY]*.****

ADMITTING PROTOCOL

Receive human remains in plastic bag from Triage.

Record next sequential morgue number available and provenience (or other identifying information from the scene) on the flip chart.

Label bag of tissue with assigned morgue number. Do not put provenience or scene information on the bag – only the morgue number.

Create a folder with the assigned morgue number. Place appropriate paperwork, as indicated on the Victim Processing Record, inside the folder. Number all paperwork appropriately.

Create a Tyvek tag with the assigned morgue number. Place the Tyvek tag in the folder, NOT in the bag.

Staple Victim Processing Record to front of file. Initial this form.

If remains are determined, at any station, to be unrelated, they will be separated and returned to Triage for assessment.

- One specimen will be designated by the original morgue number.
- The second specimen will be admitted into the identification process according to the above procedures and receive new paperwork.
- All paperwork for each specimen should have reference to the morgue number of the other specimen.

RADIOLOGY PROTOCOL

Turn on processor at beginning of the day. Hit the run button. Processor will be ready in approximately 15 minutes. Ready light will come on when processor is ready.

Gloves will be worn at all times

Place cassette inside plastic cover. Place remains on cassette.

- Depending on the size of the cassette, several items may be radiographed on the same film.
- Label the remains with the corresponding morgue number with the lead numbers provided. Lead numbers should be placed as close to the specimen as possible. Do not place multiple specimens together if the morgue numbers run from 0 to 1 (example, 60 with 61).
- Attempt to place the remains in anatomical position when possible. The Anthropology or Pathology team will assist as needed.

Process the film in the darkroom. Return the film to the imaging area. It is useful to have one person outside the morgue to transport and process the film from the morgue door. This eliminates signing in and out, and having to put on and take off PPE.

Review the film for adequate exposure and proper labeling.

- Film should have proper morgue number label along with MFI name on the film.
- If remains need to be repositioned to reflect anatomical position of the body part, take an additional radiograph.
- **[AGENCY]** is notified of any unusual findings (e.g., possible weapons or pieces of weapons).

The scribe

- completes the Radiology Victim Processing Record
- initials logbook
- places films in corresponding x-ray folder.
 - ▶ If multiple remains are included on one film, note on outside of x-ray folder. Place up to twenty specimen radiographs in one envelope.
- signs the Victim Processing Record on the front of the folder
- If remains are not received in numerical order, note missing remains for future reference. If specimen is not received by the end of the day, contact Morgue Manager.

End of day clean-up

- Use disinfectant spray or wipes on all equipment, cassettes and table.
- Turn off x-ray equipment and processor. Lift the lid of the processor for ventilation

When radiograph is requested for review by another area, a representative of that area will sign it out with the date and time and sign back.

PHOTOGRAPHY PROTOCOL

Specimen is received and placed on white background (photo copy stand).

Place right-angle metric rule next to specimen. Add extension ruler if required.

Place Tyvek tag (from folder) with morgue number next to specimen.

Shoot photo.

Record in Photodocument Log:

- Date
- Film roll number
- Photo number
- Morgue number. Add a letter suffix for subsequent photos of the same specimen, e.g., 32, 32A, 32B.
- Camera settings
- Notes, as f needed
 - Dental
 - Perforations in tissue
 - Correlation of morgue numbers
 - "PE" if personal effects are in the photo

Sign and date the Victim Processing Record.

Label:

- Exposed (used) film with the photo roll number and the MFI name
- Exterior of film canister lid with film roll number
- Inside of film canister lid lid with MFI name
- Ziplock baggie with MFI name and photo roll number

Place photo roll and Photodocument Log in baggie and seal.

Document Photo roll numbers and specimen shots in the Photo Log.

If a specimen comes back to be re-photographed, look up the morgue number in the Photodocument Log to determine the last number/suffix used so that the new photograph can receive the correct sequential number. For example, if specimen 32 had three photographs taken when it originally came through, those photos are numbered 32, 32A, and 32B. If 32 comes back for more photos, they should be labeled 32 C, 32 D, etc.

Trooper takes possession of film and the original Photodocument Log. He will hand-deliver this directly to **[AGENCY]**. The Trooper will keep a copy the Photodocument Log for himself. A copy should also be retained in the Photography Section.

One set of photographs was made to place in the original postmortem files. A second set is placed in the postmortem file copies maintained by DMORT.

[AGENCY] maintains all original film negatives.

ANTHROPOLOGY PROTOCOL

The Anthropological Analysis is completed by a team consisting of 2 anthropologists and 1 scribe.

The human remains are received and placed examination table. Morgue number is verified on file and specimen bag.

Anthropologists:

- Assess biological parameters
- Review Pathology and Dental forms for consistency (bone, side, biological parameters, etc.) with Anthropology assessment. If there is a discrepancy, the team consult the other teams(s) and reach a consensus on the assessment.

Scribe:

- Locates X-ray and places it on light box for review.
- Transcribes information dictated by Anthropologists to Anthropology Examination form.
- Completes Anthro Log for each specimen

Anthropologist signs and dates Anthropology Examination Form and the Victim Process Record.

Anthropology Specimen Cleaning Protocol

During the processing of specimens by anthropology, it may be necessary to remove the tissue from bone features used for analysis of age, sex or pathology in order to observe subtle features. All attempts are made to remove the adherent tissue using scalpels, scissors and/or periosteal elevators. If additional tissue removal is necessary, the following procedures are observed:

- Runner takes specimen to DNA for immediate sectioning. If DNA requires a section of the bone, indicate which part is still needed for anthropological analysis and return this portion to Anthropology after sectioning.
- Process bone as needed:
 - Place the bone in microwave-safe container and fill with water so bone is barely submerged. Microwave for 5 minute intervals and continue to clean the bone manually (up to 30 minutes total).
 - If tissue is still present after heating and cleaning, soak in bleach solution (50% bleach, 50% water) for 1 hour. Increase bleach concentration for second soaking if necessary.
 - Indicate cleaning procedures used (microwave, bleach, etc.) in comments of Anthropology Examination Form.

PATHOLOGY PROTOCOL

The Pathology Analysis is completed by a team consisting of a pathologist and a scribe.

The human remains are received and placed examination table. Morgue number is verified on file and specimen bag.

Pathologist:

- Assesses appropriate dimensions and features of each specimen
- Notifies [*AGENCY*] of any unusual findings, e.g., possible wounds
- If specimen cannot be analyzed, the forms must still be completed. A notation of “no analysis” or “no pathology” should be made.

Scribe:

- Locates X-ray and places it on light box for review.
- Transcribes information dictated by Pathologist to Pathology Examination Form.
- Completes Pathology Log for each specimen

Pathologist signs and dates Pathology Examination Form and the Victim Processing Record.

DENTAL ID PROTOCOL (ANTEMORTEM)

Obtain list of possible victims.

Contact last known treating dentist.

Record antemortem dental records (PADIT Manual Page III 8-9).

Deliver information to antemortem file (See PADIT MANUAL III 12-14).

DENTAL ID PROTOCOL (POSTMORTEM)

Receive dental remains from previous station.

Clean remains.

Examine and chart remains according to PADIT Manual Page III 3-5.

X-ray dental remains (conventional/digital), PADIT Manual pages III 10-11.

Digital photograph of remains (if authorized by DMORT Commander).

Complete and copy all postmortem records.

Deliver and log postmortem record to dental comparison section (see PADIT Manual Page III 12-14).

DNA PROTOCOL

Set up computer from AFDIL with AFDIL incident number and initials of AFDIL personnel present.

Set up station for DNA recovery.

- Scalpels
- Stryker saws
- Diluted (10%) bleach solution
- Disposable covers (12 X 12 Bench Kote)
- 4 X 4's to wipe instruments
- Collection tubes
- Evidence bags

Specimens should come to DNA station LAST. If the Victim Identification form indicates that a station has been skipped, a runner should be directed to return the specimen and file to that station. Exceptions can be made for special treatment of the specimens by request from the [AGENCY].

The DNA recovery team examines the specimen to determine whether a sample will be taken, as per AFDIL guidelines:

- 5-10 grams of deep skeletal muscle (avoid tissues that may have been crushed together by incident impact or blast forces)
- 1-2 cm x 4-6 cm x 0.5-1 cm of cortical bone (avoid anthropological landmarks and articular margins, as well as fresh-broken margins, when possible; cut windows in long bones and crania)
- Upper or lower canine or other intact tooth without restorations
- Other portion of soft or hard tissue that fits into a 50 mL conical tube

The morgue number of the specimen is noted on the DNA Log, along with a YES or NO indication for sampling. Start log with date, page number, and MFI name.

If a sample is taken, the specimen is placed into a specimen tube that has been pre-labeled, by hand, with the AFDIL number AND the morgue number. The numbers should appear on the tube itself AND on the lid.

The specimen tube is given to the computer operator. The computer operator:

- Enters the morgue number of the specimen, the type of material, and the exact nature of the specimen.
- Generates two labels
 - The first label is placed on the tube on the opposite side of the hand-written numbers, as close to the lid as possible.
 - The second label is placed on the plastic evidence bag
- Inserts the labeled tube into the labeled bag.

The bag is heat-sealed and placed into a cooler or a -20° freezer until it is released to AFDIL. Once a specimen is frozen, it should remain frozen.

The specimens should be kept cold while awaiting sampling. If there is an extended break, or if the sampling takes longer than usual, the specimens should be returned to the truck temporarily.

Completed samples are released to AFDIL by the coroner/medical examiner.

The Victim Processing Record is initialed, and a YES or NO is written to indicate sampling.

RUNNER PROTOCOL

GENERAL

- Help locate files and specimens as needed.
- Help keep specimens moving from one Section to the next.
- Make sure that files and/or specimens removed from any Section are logged out and back in appropriately.
- Specimens of interest to the *[AGENCY]* are given priority.

PHOTOGRAPHY RUNNER

- Pick up files and specimens.
- Verify that specimen and file numbers match.
- Verify that Photography has signed off on the Victim Processing Record.
- Deliver to next appropriate station. Check the Victim Processing Record to determine station. This is usually Pathology but may be Dental, Fingerprinting, or Anthropology

PATHOLOGY RUNNER

- Keep Pathology specimens in order in container labeled “PATHOLOGY – TO BE DONE”
- Keep files that correspond to specimens in numerical order
- Once analysis is completed, deliver the specimen and file to next station

ANTHROPOLOGY RUNNER

- Keep Anthropology specimens in order in container labeled “ANTHROPOLOGY – TO BE DONE”
- Set out several specimens (as space permits) in sequence with their associated x-rays and files
- Keep files that correspond to specimens in numerical order
- When analysis is completed
 - Return x-ray back to x-ray file
 - Deliver specimens and file to next station

DNA RUNNER

- Place specimens in container labeled “DNA – TO BE DONE”
- Verify that specimens have been examined by all Sections before bringing to DNA for review.

SPECIAL WALK-THROUGH PROTOCOL

[AGENCY] determines when a specimen becomes evidence. Whenever a Section processing remains feels there is a significant clue has been found, *[AGENCY]* is notified immediately to make the final determination. Once *[AGENCY]* advises DMORT that a particular specimen is to be treated as evidence, a Runner is assigned to walk the specimen(s) through any remaining stations. The Runner observes the following procedures:

- Stays within view of the specimen(s) while they are processed or transfers temporary custody of them if required to leave the specimens(s) for any reason.
- Ensures that the *[AGENCY]* and appropriate DMORT staff signs the Specimen Removal Form AFTER all Sections have completed their analysis
- Copies the specimen file, including the Specimen Removal Form, for DMORT records
- Hand delivers the copied file to the Records Room Supervisor for data entering and permanent filing.

MORGUE SPECIMEN IN-PROCESSING AND SANITATION PROTOCOL

SPECIMEN IN-PROCESSING

Remains are delivered in biohazard bags from the disaster site. These are weighed and placed in refrigerator truck #1.

As the Triage Station is ready, bags of remains are brought in at a gradual rate so that materials do not sit out in ambient temperature any longer than necessary.

After the specimens are processed through all Sections, they are stored in sequential morgue number in refrigerator truck #2.

For Quality Assurance, the Common Tissue remains are x-rayed and reviewed by the pathology station. Specimens identified as important may be pulled from the bags and returned to Triage for re-assessment. Once Quality Assurance has been completed, the Common Tissue remains are bio-sealed in larger bags. These bags are numbered and dated, and a log is maintained. Once labeled, the bags are placed in the refrigerator truck #2.

SANITATION PROTOCOL

Temporary sinks are periodically checked for spillage and overflow of drainage.

At the cessation of each day's morgue operations, the following sanitation measures are taken:

- All tissue specimens, whether processed or unprocessed, are returned to refrigerator trucks. These are sorted into containers labeled for the Section that they were awaiting examination so that they can be returned to those Sections the next day.
- All biohazard materials are collected and sealed for pickup. New biohazard containers are prepared and placed within the morgue.
- All sinks, processing surfaces, and processing areas are disinfected with bleach or other disinfectants.
- All body fluid and processing waste buckets empty and properly disposed of. The buckets are then treated with bleach or other disinfectant.
- Floor areas are cleared and mopped with disinfectant
- Refrigerator trucks are checked and locked.
- All morgue entrances are secured.

TEMPORARY SPECIMEN REMOVAL PROTOCOL

Use the Temporary Removal Form when *[AGENCY]* needs to examine a specimen temporarily.

[AGENCY] should be written in red marker in the Comments section of the Victim Processing Record and signed by the *[AGENCYC]*

Keep the form in your section until the *[AGENCY]* returns the specimen and signs it back in.

TEMPORARY REMOVAL FORM

Specimen # _____

Date:

Time:

Checked out from Station _____

By _____

Returned date:

Returned time:

By:

PERMANENT SPECIMEN REMOVAL PROTOCOL

Use the Permanent Removal Form when *[AGENCY]* needs to permanently take custody of a specimen for analysis.

[AGENCY] should be written in red marker in the Comments section of the Victim Processing Record and signed by the *[AGENCY]*

A copy of the paperwork will be made to travel with the specimen.

PERMANENT REMOVAL FORM

Specimen # _____

Date:

Time:

Checked out from Station _____

By (*[AGENCY]* AGENT) _____

Morgue Representative Signature _____

LIBRARY PROTOCOL

GENERAL

All antemortem data, except dental, are entered at the Family Assistance Center (FAC). Information being generated at FAC will be merged into the computer at IRC (Information Resource Center).

All postmortem folders are data entered and filed in IRC. All charts *must be signed in and out*.

All antemortem records (other than dental and medical) are to be filed in IRC and *must be signed in and out*.

ANTEMORTEM RECORDS – DENTAL AND MEDICAL

All dental and medical records are logged in at the IRC. Faxed records are received by **[AGENCY]** and recorded as received by the IRC. The records are held at IRC until retrieved by the Antemortem Section Leader.

Antemortem dental records are entered in on the Antemortem Log and placed in the Unprocessed File Folder in the Antemortem Records File.

Antemortem dental records are charted according to the established Dental Protocol. Completion of charting is entered on the Antemortem Log. The records are then are placed in the box labeled “To Be Entered in WinID.”

After data entry, the records are filed numerically in the Antemortem File. Completion of the data entry is entered on the Antemortem Log.

POSTMORTEM RECORDS – DENTAL

All postmortem records are hand-carried from the Dental Section to the Dental ID office where they are entered onto the Postmortem Log and placed in the box labeled “To Be Entered in WinID.”

After data entry, the records are filed numerically in the postmortem file. Completion of the data entry is entered on the Postmortem Log.

All records must be signed in and out of central filing.

FILE QA/QC PROTOCOL

Unnecessary and/or blank forms are removed from the files.

Cross-check that specimens sampled for DNA analysis as indicated on the Victim Processing Record are listed on the master list compiled by the DNA Section.

The files are reviewed to assure that there are no discrepancies, inconsistencies, or omissions. If a problem is found the following procedures are observed:

- If a Section has not signed the Victim Processing Record, the file is sent to the appropriate section for signature.
- If a Section has not processed the specimen, a blue sheet for the appropriate Section is labeled with morgue number. The file with the blue sheet and the specimen are sent to the appropriate section(s) for analysis.
- If discrepancies are found between the Sections analyses, a blue sheet is filled out indicating the nature of the discrepancies. The file is routed to the appropriate section(s) for re-analysis and problem resolution.
 - If an inconsistency is noted between the Scientific Sections (i.e., Pathology, Anthropology) and Radiology on the identification of the specimen, the Radiology form is annotated with the identification provided by the scientific section. This annotation is initialed and dated by the File QA team.
- If an inconsistency is noted within a Section report, a blue sheet is filled out noting the inconsistency and the file and/or specimen is routed to the appropriate Section for resolution.
- If a specimen has already been positively identified prior to the QA assessment and not all Sections have completed their analyses, the specimen is considered fully processed. The specimen is not re-routed for further analysis. The remaining sections are crossed off of the Victim Processing Record and initialed by the QA team.

A list is maintained of all files that are re-routed. As the files are returned to the QA team, they are crossed off the list if they pass the remaining QA standards.

Once files have been assessed for all of the above criteria and passed all quality checks, a blue "Q" is written on the lower right corner of the Victim Processing Record and marked off a master list indicating that the file has passed QA standards. The files are then sent to IRC for copies to be made.

Once copies of the files have been made, any additions or changes must be made on orange (not blue) paper. These orange sheets will be copied and filed in each copy of the files.