National Transportation Safety Board

Office of Aviation Safety
Office of Research and Engineering
Washington, D.C. 20594

December 15, 2000

WITNESS GROUP STUDY REPORT ADDENDUM

DCA96MA070

A. Accident

Location: East Moriches, New York

Date: July 17, 1996

Time: 2031 Eastern Daylight Time (EDT)

Airplane: Boeing 747-131, N93119
Operated as Trans World Airlines (TWA) flight 800

B. Witness group

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C. Summary

On July 17, 1996, at about 2031 EDT, a Boeing 747-131, N93119, crashed in the Atlantic Ocean, about 8 miles south of East Moriches, New York, after taking off from John F. Kennedy International Airport (JFK). The airplane was being operated on an instrument flight rules flight plan under the provisions of Title 14 Code of Federal Regulations (CFR), Part 121, on a regularly scheduled flight to Charles De Gaulle International Airport (CDG), Paris, France, as Trans World Airlines (TWA) flight 800. The airplane was destroyed by explosion, fire and impact forces with the ocean. All 230 aboard were killed.

D. Details

Between April 1998 and January 2000, the witness group conducted many activities to organize and extract factual information from the FBI witness documents. The *Witness Group Chairman's Factual Report* describes how the witness documents were organized and how the locations of the witnesses were determined. The *Witness Group Study Report* describes the definitions and procedures used to extract factual information from the witness documents. Information about the documents themselves and the factual information extracted from them were recorded in a database. The database contains 5 tables. Each table is listed below, and a brief description of the fields in each table is given.

A computer disk containing the witness database is available. The database is stored on the disk in two formats: (1) Microsoft Access for Windows 95, and (2) five tab-delimited text files that may be imported into other database software. Potential users of the data are urged to become thoroughly familiar with the contents of the previously-issued witness group reports before attempting to use the data. The witness database disk has been placed into the public docket and may be ordered by calling 800-877-6799 or 202-314-6551, or by writing to:

National Transportation Safety Board
Public Inquiries Branch - RE-51
490 L'Enfant Plaza East, S.W.
Washington, DC 20594

Table of contents

Document_Info table

Overview

This table contains information about the documents themselves: It includes the FBI-assigned subfile and serial number of the document, the type of document, the legibility of the document, the completeness of the document, and if there are attachments to the document. The table contains one record for each witness document, for a total of 906 records.

Data elements

wit_num

This field contains the witness number assigned by NTSB investigators.

sub_ser

This field contains the FBI subfile and serial number of the document. The subfile and serial numbers that are stored in this field were imported directly from the FBI document catalogs.

date_received

This field contains the date that NTSB investigators received the document from the FBI.

doc_type

This field contains the type of each FBI document. Possible values are "TELETYPE," "302," "EC," or "INSERT." The information that is stored in this field was imported directly from the FBI document catalogs.

pages

This field contains the number of pages in each document.

count

This field contains a count of the number of times that each sub_ser number appears in the FBI document catalogs. It roughly corresponds to the number of people to whom each document pertains.

status

This field contains information about whether the body of the document (excluding any attachments) appears to be complete or missing pages. During the document sorting project, some documents with missing pages were discovered. For these documents, the FBI either provided missing pages or stated that there were no additional pages.[1] Consequently, the possible values for this field are "Appears complete" or "Complete per FBI."

legibility

This field contains information about the legibility of the document. Possible values are "Good copy," "Poor copy," or "Portions illegible."

attachments

This field contains information about any attachments to the document. Possible values are "FBI did not provide," "FBI unable to locate," "None," "None, per FBI," or "Present."

Interview_Dates table

Overview

This table contains information about the dates that the witnesses were interviewed. Based on the FBI documents received, it includes the date(s) that each witness was interviewed and how many times each witness was interviewed. The table contains one record for each witness document, for a total of 906 records.

Data elements

wit_num

This field contains the witness number assigned by NTSB investigators.

interviews

This field contains the number of witness documents (interviews) on file that pertain to the witness.

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[1] For further information about the organizing the documents, see the *Witness Group Chairman's Factual Report*, which is in the public docket.

sub_ser

This field contains the FBI subfile and serial number of the document. The subfile and serial numbers that are stored in this field were imported directly from the FBI document catalogs.

int_date

This field contains the interview date of the document. This date was determined by NTSB investigators from information provided in the documents. This information could not be determined from available information for 11 documents.

int_num

This field contains an integer corresponding to the interview number. For example, a "1" indicates the first interview on file for a given witness, a "2" indicates the second, etc. The number "1" was entered in cases where only one interview is one file for a given witness, regardless of whether the date of that interview could be determined.

Witness_Info table

Overview

This table contains information about how each witness was classified by the witness group during the document reading project.[2] The table contains one record for each potential witness, for a total of 755 records.[3]

Data elements

wit_num (item 1)

This field contains the witness number assigned by NTSB investigators.

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[2] For further information about the document reading project, see the *Witness Group Study Report*, which is in the public docket. For the definitions and procedures used to extract factual information from the documents, see *Appendix A: Document reading project data elements and definitions* of that report. If a definition from that appendix is referenced in this report, that definition's item number is cited in parentheses after the field name.

[3] Safety Board investigators initially identified 755 potential witnesses in the witness documents. During the document reading project, the witness group determined that 736 of these 755 potential witnesses met the witness group definition of a witness (see footnote 1).

witness? (item 2)

The witness group determination of whether this person meets the definition of a witness, based on the available documents. Possible values are "Yes" or "No." The group defined a witness as anyone who reported hearing a sound and/or seeing an object or objects (including smoke or fire) in the sky in the general vicinity of the accident site, on July 17, 1996, at the approximate time of the TWA flight 800 crash. It must be likely that the sound or object observed was related to the crash.

snd_wit (item 5)

The witness group determination of whether each witness reported hearing a sound or feeling a vibration or concussion that could be related to the accident. Possible values are "Yes," "No," or "NM" (not mentioned).

sight_wit (item 6)

For each witness, the witness group determination of whether he or she reported seeing an object in the sky. Possible values are "Yes," "No," or "NM."

event_time (item 9)

The event time is the estimated overall duration of all visual events provided in the witness document. Estimates of the duration, a range of time, or descriptive terms such as "a few seconds" or "a short time" were included.

s_wit (item 11)

For sight witnesses (see *sight_wit*, item 6), this field contains the witness group determination of whether the witness reported seeing an streak of light moving in the sky. Although usually described as ascending, the streak could have been described as arcing over and/or descending. A streak of light was variously described as a point of light, fireworks, a flare, a shooting star, or something similar. It may or may not have had a trail. It must not have met the definition of a fireball (for the definition of a fireball, see page 11), and it must have preceded any report of a fireball. Possible values are "Yes" or "No."

s_poi_wit (item 12)

For each streak witness (see *s_wit*, item 11), this field contains the witness group determination of whether the witness specifically reported seeing the point of origin of the streak of light. Possible values are "Yes" or "No." If the streak was observed coming from below the horizon or behind a landmark or obstruction (such as a dune, tree line, building, etc.), this item was coded "Yes."

s_origin (item 13)

For each streak point of origin witness (see *s_poi_wit*, item 12), this field contains the witness group determination of where the witness reported seeing the streak of light originate. "Surface" was entered if the streak of light was reported as originating from the surface of the earth (*e.g.*, from a boat). "Air" was entered if the streak of light was reported as originating from above the surface of the earth. "Behind landmark/obstruction" was entered if the streak was reported as coming from behind a land mark or obstruction (such a dune, tree line, building, etc.). "Horizon" was entered if the streak was reported as coming from below the horizon.

s_origin_surface (item 14)

For each streak point of origin witness (see *s_poi_wit*, item 12) who was judged to have reported that the streak originated at the surface, this field contains the witness group determination of where on the surface the witness reported seeing the streak of light originate. "Land" was entered when the witness reported that the streak of light originated from land. "Sea" was entered when the witness reported that the streak of light originated from the sea. If the witness reported that he or she saw it come from the surface, but did not specify where on the surface he or she saw it originate, the field was left empty.

s_lateral_wit

If the witness group determined that a streak witness (see *s_wit*, item 11) reported that the streak generally traveled laterally, "Yes" was entered.

s_lateral (item 21)

For streak witnesses (see *s_wit*, item 11) who reported that the streak generally traveled laterally (see *s_lateral_wit*), this field contains the text description of the streak's lateral direction of travel as described by the witness. This includes information such as left to right, toward or away, a compass direction, horizontal motion, parallel to the surface, etc. References to lateral speed (or relative speed) of the streak were also included.

s_direction (item 23)

For streak witnesses (see *s_wit*, item 11) who reported that the streak generally traveled laterally (see *s_lateral_wit*), this field contains the witness group determination of the compass direction of the streak of light based on the witness' lateral description of the streak's motion, and the location of the witness. If the compass direction could not be determined, the field was left empty.

s_vertical_wit

If the witness group determined that a streak witness (see *s_wit*, item 11) reported that the streak traveled vertically or nearly so, "Yes" was entered.

s_vertical (item 22)

For witnesses who reported that the streak generally traveled vertically or nearly so (see *s_vertical_wit*), this field contains the text description of the streak's vertical motion as described by the witness, including characteristics such as up/down, changing altitude, ascending/descending, or its angle of travel relative to the horizon (but not an angle describing the height of the streak above the horizon). References to vertical speed (or relative speed) of the streak were also included.

s_trail_wit (item 24)

If a streak witness (see *s_wit*, item 11) explicitly reported that the streak had a trail, "Yes" was entered. This trail could have been light, smoke, or anything else that was visible.

s_trail_desc (item 25)

If a trail was reported (see *s_trail_wit*, item 24), this field contains the text description of how the witness described the physical characteristics of any reported trail (*i.e.*, smoke, flame, etc.), its duration, length, and whether it was continuous, etc. Descriptions of color were not included (see next item).

s_trail_color (item 26)

The color of any reported trail as characterized by the witness, if a trail was reported (see *s_trail_wit*, item 24).

s_time (item 28)

For streak witnesses (see *s_wit*, item 11), this field contains any witness-provided estimate of the amount of time that the witness reported viewing the streak of light. Estimates of the duration, a range of time, or descriptive terms like "a few seconds" or "a short time" were included.

s_airplane_wit (item 30)

If a streak of light witness (see *s_wit*, item 11) reported seeing an airplane in the general vicinity of the streak while the streak was visible, "Yes" was entered. Descriptions of small general aviation airplanes flying near the beach were not included.

fb_wit (item 31)

For sight witnesses (see *sight_wit*, item 6), this field contains the witness group determination of whether the witness reported a downward-moving ball(s) of fire in the sky. A fireball could have been described as an explosion, a bright orange flame, a large ball of light, a wall of flames, or a glowing object falling from the sky. It may have been characterized as stationary or descending. Generally, if a fireball was mentioned, it was one of the last airborne events described. A fireball is something that appeared in the sky after the termination of a streak of light, if a streak was reported (for the definition of a streak of light witness, see page 8). A fireball is not an ascending object, nor an object that meets the definition of a streak of light. Possible values are "Yes" or "No."

fb_count (item 32)

The witness group determination of how many fireball(s) a fireball witness reported first observing. If the witness reported first seeing a single fireball, then "1" was entered. If the witness reported first seeing multiple fireballs, then the field was left empty.

fb_erupt (item 33)

If the fireball witness first observed one fireball (see *fb_count*, item 32), and if the witness group determined that a fireball witness specifically reported seeing the fireball form or begin, "Yes" was entered. For a witness who looked up and reported seeing a single fireball already existing in the sky, "No" was entered. If the witness reported first seeing multiple fireballs, then the field was left empty.

fb_split (item 35)

If the witness first observed one fireball (see *fb_count*, item 32), and if the witness group determined that a fireball witness specifically reported seeing a single fireball split or separate into two or more fireballs, "Yes" was entered. If the witness group determined that the witness did not report seeing a split or separation, "No" was entered. If the witness document(s) did not mention seeing the fireball split, "NM" was entered. If the witness reported first seeing multiple fireballs, then the field was left empty.

fb_water (item 38)

If the witness group determined that a fireball witness explicitly reported that he or she saw the fireball hit the water, or drop all the way to the horizon, "Yes" was entered. If the witness reported seeing the fireball falling, but the final view was obstructed by anything such as trees, dunes, buildings, etc., then "No" was entered. If the witness document(s) did not mention seeing the fireball hit the water or horizon, "NM" was entered.

snd_count (item 43)

For sound witnesses (see *snd_wit*, item 5), this field contains the witness group determination of the number of sounds that the sound witness reported hearing. If a number was given, that number was entered. If the witness characterized the number as "many" or "several," etc., that text was entered.

snd_desc (item 44)

For sound witnesses (see *snd_wit*, item 5), this field contains the text description used to describe the sound(s).

snd_sight (item 45)

If the witness group determined that a sound witness (see *snd_wit*, item 5) who was also an sight witness (see *sight_wit*, item 6) reported seeing a specific visual observation that occurred at or about the same time as the sound, "Yes" was entered.

snd_sight_desc (item 46)

The text description of the visual event that each sight/sound witness (see *snd_sight*, item 45) reported seeing about the same time as the sound was heard.

snd_time_desc (item 47)

The text description of the order and timing of the sound and sight events that each sight/sound witness (see *snd_sight*, item 45) reported.

Geodata_Redacted table

Overview

This table stores the geographic information extracted from the witness documents.[4,5] The table contains one record for each potential witness, for a total of 755 records.

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[4] For the definitions and procedures used to extract geographic information from the documents, see *Appendix CC: Witness group general definitions and procedures* of the *Witness Group Chairman's Factual Report*, which is in the public docket.

[5] The FBI witness documents were redacted by the FBI to protect information that would tend to personally identify the witnesses (*e.g.*, names, addresses, social security numbers, etc.). To determine the locations of some witnesses at the time of the accident (witnesses whose location was redacted), Safety Board staff referenced either an address list provided by the FBI or an unredacted set of documents that the

Data elements

wit_num

This field contains the witness number assigned by NTSB investigators.

situation

This field records whether the witness was on land, sea, or air at the time or his or her observations, as follows:

- "Land: Outside" - The witness was outside and on land.
- "Land: In building" - The witness was inside a building.
- "Land: In vehicle" - The witness was in a land vehicle.
- "Land: Motorcycle" - The witness was on a motorcycle.
- "Land: Unknown" - The witness was on land, but his or her situation could not be determined more specifically.
- "Sea: Boat" - The witness was in a boat.
- "Sea: Swimmer/surfer" - The witness was swimming or surfing.
- "Airborne" - The witness was in an airborne aircraft.
- "Unknown" - Witness situation could not be determined.

callsign

For airborne witnesses, this field contains the callsign of the aircraft.

geo_type

The type of geographic data used to evaluate the position of the witness, as follows:

FBI loaned to the Safety Board. However, as a condition of the use of these documents, the Safety Board agreed not to release the redacted information that would tend to identify the witnesses. Consequently, some information for 134 witnesses could not be included in the Geodata table, and the text "Unavailable" was entered into the location, comments, and callsign fields for these witnesses.

- "Radar data" - Positions of airborne witnesses determined by reference to recorded radar data.

- "NTSB GPS (point)" - Position determined by a GPS reading taken by NTSB investigators at the witness's location.

- "Street mapping of a point" - Positions determined by using maps and charts by locating an appropriate landmark or street intersection.

- "Street mapping of a block" - Positions determined by using maps and charts by locating the appropriate block of a street for a given address.

- "NTSB GPS (vicinity)" - Positions were determined by a GPS reading taken by NTSB investigators near the witness's location.

- "General vicinity" - Positions were determined by reference to paper and electronic maps.

- "Approximation" - Positions were determined by reference to paper and electronic maps.

- "Self reported position" - The position provided in the witness document (a latitude and longitude or LORAN coordinates) was used as witness's position.

- "Witness mapped position" - Positions were determined by reference to a witness-provided map indicating his or her position.

- "Representational" - Positions were determined arbitrarily when only a minimal amount of geographic information was available.

- "Insufficient geographic information" - Positions that could not be determined, even representationally, from available information.

latitude

The latitude of the witness's position in decimal degrees (north latitude indicated by a positive number).

longitude

The longitude of the witness's position in decimal degrees (west longitude indicated by a negative number).

location

Text description of where the witness was located (such as the name of a restaurant, a marina, a park, etc.).

comments

Comments regarding how the witness's position was determined.

Angles_Distances

Overview

For each of the witnesses for whom a position could be determined, five calculations were made: ground distance, slant range, elevation angle, initial azimuth, and final azimuth. No attempt was made to calculate this information for the witnesses who were plotted representationally or for whom insufficient geographic data were available;[6] therefore, this table contains 603 records.

Data elements

wit_num

This field contains the witness number assigned by NTSB investigators.

ground_distance

The distance along the surface in feet from the witness to the position of the last transponder return recorded at Trevose, Pennsylvania.

slant_range

The distance in feet from the witness up to TWA flight 800 (at 13,750 feet) at the time of the last transponder return recorded at Trevose, Pennsylvania.

elevation

The angle above the horizon at which TWA flight 800 was located for the witness at the time of the last transponder return recorded at Trevose, Pennsylvania.

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[6] Further, only ground distance was calculated for airborne witnesses.

azimuth_initial

The bearing in degrees true from the witness to the position of the last transponder return recorded at Trevose, Pennsylvania.

azimuth_final

The bearing in degrees true from the witness to the position of the major debris pile in the Northwest corner of the Green zone (40.6632 degrees north latitude, 72.6237 degrees west longitude).

David L. Mayer
Witness group chairman