C05782969

Central Intelligence Agency

Washington, D.C. 20505

15 March 1999

Mr. James E. Hall
Chairman, National Transportation
Safety Board
490 L'Enfant Plaza East, SW
Washington, DC 20594-2000

Dear Chairman Hall:

Thank you for your letter dated February 25, 1999 requesting a technical briefing for the NTSB's Witness Group in connection with CIA's assistance to the FBI on the TWA Flight 800 investigation. I understand that your request is for the purpose of helping the Witness Group--before it issues its findings of fact publicly--understand CIA's evaluation of the witness statements. I know what an important matter this is for all concerned, and we want to assist you in any way we can.

I have asked the lead analyst on CIA's Flight 800 effort to provide the briefing you requested at your earliest convenience. During the past 16 months, this analyst has been working closely with Dr. David Mayer of your organization to help with the NTSB's analysis of the eyewitness reports. Dr. Mayer, who as you know heads the NTSB's Witness Group, has already provided CIA with a list of potential questions that members of the group might ask concerning CIA's analytical techniques and conclusions. We shall try to address these during the briefing, and understand that additional questions might arise as the briefing progresses.

I understand also that the briefing will be in a closed session, that no transcript will be made of CIA's presentation, and that appropriate safeguards will be available to protect any extraneous CIA and FBI interests. As the Witness Group's interests relate to CIA's previously announced analysis of witness statements provided by the FBI, we do not anticipate that any classified information will be involved.

Again, we look forward to providing assistance.

Sincerely,

George J. Tenet
Director of Central Intelligence

DCI ACTION CENTER

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C05782969

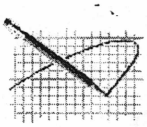
Letter to Mr. James E. Hall

[redacted] (9 Mar 99)

[redacted]

C05782678

(b)(3)



03/24/1999 10:52 AM

To
cc
bcc
Subject TWA 800 questions

2) In regard to the flight analysis -- I am prepared to do this -- but hardly in a short statement -- OR TO A NON-TECHIE!

7) See figure

8) Maximum CIA calculated altitude in the final simulation was about 14,500 ft.

14) The final dynamic flight simulation suggests an impact velocity of about 300 knots (345 MPH). The average speed, from maximum altitude to the surface, was about 260 knots. The velocity along the entire flight path was determined from dynamic simulation.

19) The animation was constructed using mid study results which contained dynamics closely matching available radar data and time of impact. Final results, which match a larger and more refined data set, yielded a flight path which was very similar.

20) The maximum calculated angle of attack is about 35 degrees. This high angle suggests the likelihood that engine compressor stall would occur. Witness accounts do report ..... The presence of engine thrust, or the lack thereof however, does not significantly influence flight path.

APPROVED FOR
RELEASE DATE:
19-Mar-2012

C05782975

~~FOR OFFICIAL USE ONLY~~

(b)(3)

NOTE FOR: John H. Moseman@DCI
FROM:
OFFICE: OTI
DATE: 05/21/99 03:07:55 PM
SUBJECT: TWA Flight 800: Call From Congressional Staffer

At 11:55 a.m. today, the following message from Matt Dougherty in Senator Grassley's office was left on my office voice mail:

"Hey this is Matt Dougherty. I'm with Senator Grassley's office on the Senate Judiciary Committee. I was wondering if you could give me a call at 224-6736, area code 202. Thank you."

I just received the message and have not returned the call, but suspect it is related to Senator Grassley's Congressional hearings on TWA Flight 800. As I understand it, all requests from Congress to CIA must be handled through the Office of Congressional Affairs. What action, if any, would you like me to take?

CC:

Sent on 21 May 1999 at 03:07:55 PM

APPROVED FOR
RELEASE DATE:
30-Mar-2012

~~FOR OFFICIAL USE ONLY~~

C05782977

~~FOR OFFICIAL USE ONLY~~

TWA

(b)(3)

NOTE FOR:
FROM:
OFFICE: OTI
DATE: 06/02/99 02:30:00 PM
SUBJECT: TWA Flight 800: Meetings Today with CTC, Tomorrow with Senate Staffers

As I mentioned in my voice mail, we (and I) are scheduled to meet at 2 p.m. tomorrow in area (OHB) to talk with staffers from Senator Grassley's office concerning CIA's role in the TWA Flight 800 investigation.

will represent CTC, and I'll cover OTI. So we don't go into the meeting cold tomorrow, we're planning on meeting today at 4 p.m. in office (OHB) to discuss the strategy for tomorrow's meeting. Please attend if you can.

CC:

Sent on 2 June 1999 at 02:30:00 PM

APPROVED FOR
RELEASE DATE:
19-Mar-2012

~~FOR OFFICIAL USE ONLY~~

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C05782978

[redacted]

National Transportation Safety Board

Washington, D.C. 20594

Office of the Chairman

JUN 1 8 1999

George J. Tenet
Director of Central Intelligence
Central Intelligence Agency
Washington, D.C. 20505

Dear Director Tenet:

Thank you for your March 15, 1999, letter in which you agreed to assist in the National Transportation Safety Board's investigation of the Trans World Airlines flight 800 accident by authorizing CIA analysts to provide a technical briefing to members of the witness group.

The briefing was held on April 30, 1999, at Safety Board headquarters and was quite useful and informative. Although Safety Board investigators and CIA analysts have had several opportunities to discuss their mutual work concerning the eyewitness accounts of the accident, the parties to our investigation have not had the opportunity to do so. Lead analyst [redacted] as well as [redacted] addressed questions in a professional, knowledgeable and candid manner.

Your agency's willingness to assist us with this important investigation, and the enthusiasm and dedication of your staff in doing so are greatly appreciated. I would appreciate your conveying my appreciation to your analysts. I look forward to working with your organization in the future.

Sincerely,

Jim Hall
Chairman

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(b)(3)

APPROVED FOR
RELEASE DATE:
19-Mar-2012

DCI ACTION CENTER
ROUTING SLIP

		ACTION	INFO			ACTION	INFO
1	DCI		X	11	OPA		
2	DDCI		X	12	DDA		
3	DDCI/CM			13	DDI		E-Copy
4	ADCI/MS			14	DDO		
5	EXDIR/CIA		E-Copy	15	DDS&T		
6	CHMN/NIC			16	DI/OTI		E-Copy
7	IG			17			
8	GC		E-Copy	18			
9	COMPT			19			
10	OCA			20			

SUSPENSE DATE: N/A

DOCUMENT NO:

Action Officer:

COORDINATION/ROUTING:

N/A

SUMMARY:

Letter from Jim Hall, National Transportation Safety Board, expressing his appreciation for the technical briefing provided by CIA analysts on the investigation of the TWA flight 800 accident to members of the witness group. Specifically named were DI/OTI analysts and from OGC.

Date: 24 June 1999
Received in DAC: 24 June 1999

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C05782987

Mr. James E. Hall

Enclosure

[redacted] (08 Dec 99)

[redacted]

000710

C05782987

APPROVED FOR
RELEASE DATE:
30-Mar-2012

(b)(3)

Central Intelligence Agency

Washington, D.C. 20505

12 January 2000

Mr. James E. Hall, Chairman
National Transportation Safety Board
490 L'Enfant Plaza East, SW
Washington, DC 20594-2000

Dear Chairman Hall:

Please find enclosed a transcript of the 30 April 1999 briefing provided to the NTSB's Witness Group in connection with CIA's assistance to the FBI on the TWA Flight 800 investigation. This briefing was the result of your request to CIA earlier this year to help the Witness Group understand CIA's evaluation of witness statements. After attending the briefing and reviewing the briefing transcript, the head of the NTSB's Witness Group, Dr. David Mayer, requested that CIA release the transcript to the NTSB for placement on the public record. In an effort to assist in such an important matter, I am providing the transcript as requested.

A commercial transcription service prepared this transcript of the entire discussion that took place at the 30 April briefing. In accordance with Section 6 of the Central Intelligence Agency Act of 1949 and CIA disclosure policies, CIA asked the transcription service to substitute appropriate titles for the names of our employees. Similarly, we substituted a title for the name of a Missile and Space Intelligence Center employee mentioned in the discussion. The names of other attendees, however, remain in the transcript for an NTSB determination regarding their public release.

I trust that this information will be helpful and commend the difficult and hard work that the Witness Group and others have done in investigating the Flight 800 tragedy. Please let me know if CIA can be of further assistance.

Sincerely,

David W. Carey

David W. Carey
Executive Director

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C05782986

(b)(3)

APPROVED FOR
RELEASE DATE:
19-Mar-2012

~~UNCLASSIFIED//FOUO~~

Central Intelligence Agency

Washington, D.C. 20505

OCA 2000-1010
14 January 2000

Mr. John Millis
Staff Director
Permanent Select Committee
on Intelligence
House of Representatives
Washington, D.C. 20515

Dear John:

SUBJECT: Notification

COUNTRY: None

ISSUE: ~~(U//FOUO)~~ Transcript of CIA Briefing on TWA Flight 800 to be Released for Public Record

~~(U)~~ Enclosed is a background paper regarding the subject mentioned above.

~~(U)~~ Should you have any questions regarding this matter, please do not hesitate to call.

Sincerely,

[redacted]

John H. Moseman
Director of Congressional Affairs

Enclosure

~~UNCLASSIFIED//FOUO~~

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~~UNCLASSIFIED//FOUO~~

Central Intelligence Agency

Washington, D.C. 20505

OCA 2000-1010/1
14 January 2000

Mr. Michael W. Sheehy
Democratic Counsel
Permanent Select Committee
on Intelligence
House of Representatives
Washington, D.C. 20515

Dear Mike:

SUBJECT: Notification

COUNTRY: None

ISSUE: ~~(U//FOUO)~~ Transcript of CIA Briefing on TWA Flight 800 to be Released for Public Record

~~(U)~~ Enclosed is a background paper regarding the subject mentioned above.

~~(U)~~ Should you have any questions regarding this matter, please do not hesitate to call.

Sincerely,

[redacted]

John H. Moseman
Director of Congressional Affairs

Enclosure

~~UNCLASSIFIED//FOUO~~

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C05782986

~~UNCLASSIFIED//FOUO~~

Central Intelligence Agency

Washington, D.C. 20505

OCA 2000-1010/2
14 January 2000

Mr. Nicholas Rostow
Staff Director
Select Committee on Intelligence
United States Senate
Washington, D.C. 20510

Dear Nick:

SUBJECT: Notification

COUNTRY: None

ISSUE: ~~(U//FOUO)~~ Transcript of CIA Briefing on TWA Flight 800 to be Released for Public Record

~~(U)~~ Enclosed is a background paper regarding the subject mentioned above.

~~(U)~~ Should you have any questions regarding this matter, please do not hesitate to call.

Sincerely,

[redacted]

John H. Moseman
Director of Congressional Affairs

Enclosure

~~UNCLASSIFIED//FOUO~~

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C05782986

~~UNCLASSIFIED//FOUO~~

Central Intelligence Agency

Washington, D.C. 20505

OCA 2000-1010/3
14 January 2000

Mr. Art Grant
Minority Staff Director
Select Committee on Intelligence
United States Senate
Washington, D.C. 20510

Dear Art:

SUBJECT: Notification

COUNTRY: None

ISSUE: ~~(U//FOUO)~~ Transcript of CIA Briefing on TWA Flight 800 to be Released for Public Record

~~(U)~~ Enclosed is a background paper regarding the subject mentioned above.

~~(U)~~ Should you have any questions regarding this matter, please do not hesitate to call.

Sincerely,

[redacted]

John H. Moseman
Director of Congressional Affairs

Enclosure

~~UNCLASSIFIED//FOUO~~

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C05782986

~~UNCLASSIFIED//FOUO~~

Central Intelligence Agency

Washington, D.C. 20505

OCA 2000-1010/4
14 January 2000

The Honorable Jerry Lewis
Chairman
Subcommittee on Defense
Committee on Appropriations
House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

SUBJECT: Notification

COUNTRY: None

ISSUE: ~~(U//FOUO)~~ Transcript of CIA Briefing on TWA Flight 800 to be Released for Public Record

~~(U)~~ Enclosed is a background paper regarding the subject mentioned above.

~~(U)~~ Should you have any questions regarding this matter, please do not hesitate to call.

Sincerely,

John H. Moseman
Director of Congressional Affairs

Enclosure

~~UNCLASSIFIED//FOUO~~

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C05782986

~~UNCLASSIFIED//FOUO~~

Central Intelligence Agency

Washington, D.C. 20505

OCA 2000-1010/5
14 January 2000

The Honorable Ted Stevens
Chairman
Subcommittee on Defense
Committee on Appropriations
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

SUBJECT: Notification

COUNTRY: None

ISSUE: ~~(U//FOUO)~~ Transcript of CIA Briefing on TWA Flight 800 to be Released for Public Record

~~(U)~~ Enclosed is a background paper regarding the subject mentioned above.

~~(U)~~ Should you have any questions regarding this matter, please do not hesitate to call.

Sincerely,

[redacted]

John H. Moseman
Director of Congressional Affairs

Enclosure

~~UNCLASSIFIED//FOUO~~

000717

C05782986

~~UNCLASSIFIED//FOUO~~

Subject: ~~(U//FOUO)~~ Transcript of CIA Briefing on TWA Flight 800 to be Released for Public Record

1. ~~(U//FOUO)~~ Additional unclassified information regarding CIA analysis that a missile attack was not involved in the 17 July 1996 crash of Trans World Airlines (TWA) Flight 800 will soon become part of the public record. We expect renewed inquiries from the press and commentary on the analysis.

2. ~~(U//FOUO)~~ We have been informed that the National Transportation Safety Board (NTSB) has released or will soon release to the public a fact-finding report regarding eyewitness accounts of the explosion of TWA 800. This report includes a summary of an April 1999 briefing CIA provided to an NTSB-sponsored group of representatives from the NTSB and parties to the investigation (including the FAA, TWA, Boeing, and the Air Line Pilots Association). In response to a follow-on request from the NTSB, CIA is also providing a transcript of that unclassified briefing to the NTSB for the public record.

3. ~~(U//FOUO)~~ CIA's analysis of eyewitness accounts, done in support of the FBI's criminal investigation, focused on whether those accounts could support the hypothesis that a missile caused the crash of TWA 800. After reviewing the reports of 244 eyewitnesses and other data supplied by the FBI, the CIA concluded that the eyewitnesses had observed only the burning aircraft in various stages of crippled flight, rather than a missile attacking the aircraft. A CIA-produced videotape presenting the CIA analysis was publicly released by the FBI in November 1997. The civil investigation continued and in February 1999 the NTSB Chairman requested that the CIA brief a group that was studying the eyewitness accounts of the accident. The DCI agreed. The Deputy Director of the Office of Transnational Issues (OTI) and OTI's lead analyst on its Flight 800 effort briefed the NTSB-sponsored group on 30 April 1999.

4. ~~(U//FOUO)~~ The decision to allow the NTSB to place the briefing transcript on the public record was based primarily on the need for an accurate record in the case at hand. There have been several authors/commentators who have incorrectly stated CIA's conclusions and how CIA arrived at them. More importantly, while attendees at the April briefing had been under an NTSB-imposed prohibition to not discuss the NTSB's fact finding publicly, this prohibition on the parties will be lifted when the NTSB releases its fact-finding report. We can expect, therefore, that the briefing and its contents will be the subject of media and public interest shortly thereafter.

~~UNCLASSIFIED//FOUO~~

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5. ~~(U//FOUO)~~ The NTSB will effect the actual release. CIA will refer requests for the transcript to the NTSB.

C05782988

Central Intelligence Agency

Washington, D.C. 20505

(b)(3)

APPROVED FOR
RELEASE
DATE:
30-Mar-2012

27 January 2000

Mr. David Mayer
Office of Aviation Safety
National Transportation Safety Board
490 L'Enfant Plaza East, SW
Washington, DC 20594-2000

Dear Mr. Mayer:

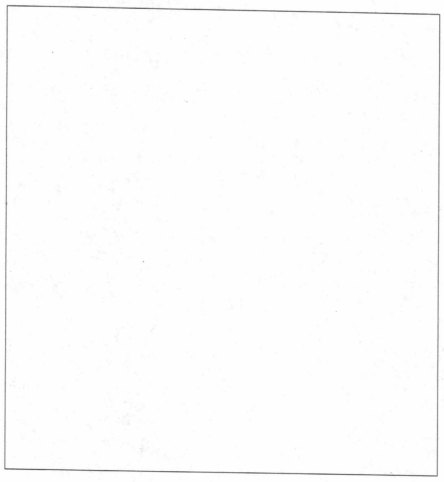
Enclosed is a copy of the transcript of the briefing provided to the NTSB Witness Group on 30 April 1999 covering the TWA Flight 800 investigation. I have also enclosed a copy of the letter to Mr. Hall for your information. Please let me know if I can be of any further assistance.

Sincerely,

Office of Transnational Issues

Enclosures

Mr. David Mayer



(27 Jan 00)

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C05460870

(b)(3)

STUDIES IN INTELLIGENCE

Journal of the America Intelligence Professional

This publication is prepared primarily for the use of US government officials. The format, coverage and content are designed to meet their requirements. To that end, some issues of Studies in Intelligence each year remain classified and are not circulated to the public, resulting in numbering gaps in scholarly collections and accounting for discontinuities in page numbering. These printed unclassified extracts from a classified issue have been provided as a courtesy to subscribers.

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APPROVED FOR RELEASE
DATE: 30-Mar-2012

000722

8:36:57, Boston: Stinger Bee five oh seven, thanks for that report, ah, New York on one three three point zero five [133.05 MHz]. Good day, sir.

8:37:05, Eastwind 507: Thirty-three oh five, so long Stinger five oh seven. Anything we can do for you before we go?

8:37:11, Boston: Well, I just want to confirm that, ah, that you saw the, ah, splash in the water approximately, ah, twenty [20 miles] southwest of Hampton, is that right?

8:37:20, Eastwind 507: Ah, yes sir. It, it blew up in the air, and then we saw two fireballs go down to the, to the water and there was a big [unintelligible] smoke form, ah, coming up from that. Also, ah, there seemed to be a light. I, I thought it was a landing light [unintelligible] it was coming right at us at, about, I don't know, about fifteen thousand feet or something like that, and I pushed my landing lights, ah, you know, so I saw him, and then it blew.

8:37:40, Boston: Roger that, sir, ah, that was a seven forty-seven out there you had a visual on that. Anything else in the area when it happened?

8:37:47, Eastwind 507: I didn't see anything. He seemed to be alone. I thought he had a landing light on. Maybe it was a fire, I don't know.

8:37:52, Boston: Stinger Bee five oh seven, ah, roger that. Anything else comes to your mind, ah, you can use your other radio, come back to this frequency and tell me about it.

8:37:59, Eastwind 507: That's all I can think of at this time.

The Eastwind Airlines pilot, Capt. David McClaine, first reported an "explosion" about 40 seconds after Flight 800's CVR and FDR ceased operating. He most likely was reporting the conflagration produced when Flight 800's left wing detached—producing two "fireballs"—roughly seven seconds before the burning debris hit the water. This large heat source was detected by an infrared sensor aboard a US military satellite just after McClaine made his first report.

The "landing light" he reported seeing earlier probably was a fire produced after the initial explosion and described by some eyewitnesses on the ground as a "streak of light in the sky" that preceded Flight 800's "explosion." It was this "streak of light" that led some people to think that a missile was used to shoot down Flight 800.

Based on sound-propagation analysis—juxtaposing what eyewitnesses saw with what they heard—CIA analysts concluded that this "streak of light" was, in fact, a trail of burning fuel from the Boeing 747 after the first explosion had already occurred, not a missile.

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not be certain that such a sound would have been recorded. It also is not relevant to our conclusion that the eyewitnesses saw only the burning aircraft, not a missile. Unless such a warhead detonation occurred well before the center fuel tank exploded, produced an enormously loud sound, and created warhead fragments that traveled faster than the speed of sound for a long time (so they caused the center fuel tank to explode before the warhead sound could be recorded by the CVR), this scenario would not change CIA's conclusion that the eyewitness observations took place after the aircraft exploded.

Any eyewitness who thinks he may have seen a missile shoot down Flight 800 needs to have seen something that occurred more than 42 seconds before the aircraft broke into "two distinct fireballs" and more than 49 seconds before the plane hit the water. CIA analysts are not aware of any eyewitness who did.

Final Observations

Analysts often have to make judgments based on limited and highly conflicting information. This was not the case for our assessment of the eyewitness reports associated with the crash of TWA Flight 800. On the whole, the corroborative evidence that the eyewitnesses saw only the burning aircraft without realizing it, and not a missile, was extensive and compelling.

Nevertheless, a few people, driven by what they perceive to be an overwhelming number of eyewitnesses who "saw" a missile attack the plane, persist in thinking otherwise. Confident that so many eyewitnesses cannot be "wrong," they have concluded that the government, for whatever reason, is covering up the true cause of the crash.[6]

These people probably are simply reading more into the eyewitness descriptions than is warranted.[7] Nonetheless, they are likely to cling to their theories. The crash drew worldwide attention and did not have an immediate explanation. Such situations almost always give rise to suspicion and conjecture.

Despite the reservations of skeptics, the work of Agency analysts evidently helped many better understand the eyewitnesses' observations. In a letter to the Director of Central Intelligence dated 17 July 1998—the second anniversary of the crash—Congressman James A. Traficant, Jr., a member of the House Transportation and Infrastructure Subcommittee on Aviation, recognized that work:

> *I want to extend my gratitude to those Central Intelligence Agency employees who worked on the analysis of the eyewitness statements. Their work was extremely helpful in the effort to unravel the Flight 800 mystery and in addressing the controversy surrounding the eyewitness testimony. I think it would be extremely beneficial if the CIA undertook an effort to better educate the American people on the work the Agency did on the eyewitness analysis.*

Notes

1. All air traffic control communications cited in this article were recorded at the Boston Air Route Traffic Control Center on the evening of 17 July 1996 and subsequently released to the public by the Federal Aviation Administration. (U)

2. In mid-January 1997, CIA analysts decided to document their work in an animated video. The CIA analysts and their line managers agreed that such a production was needed to make a convincing case to nontechnical audiences that eyewitnesses had seen only the burning aircraft. On 11 February 1997, CIA senior managers gave final approval and allocated the necessary funding.

   Eventually, this video or segments of it would be seen by several hundred million people worldwide. Most responses, including comments from several family members of the crash victims, were favorable. But some were not. A few people even suggested that the video was fabricated as part of a government coverup of the true cause of the tragedy.

3. Late on 30 December 1996, CIA analysts first realized that eyewitnesses probably had observed only the burning aircraft in various stages of crippled flight. The following morning, this conclusion was phoned to the FBI. It took about five more weeks, however, for CIA analysts to document a case solid enough to be formally briefed to the FBI. This briefing was given in New York on 6 February 1997. Details were provided in writing on 28 March 1997 in a memorandum from the CIA's Deputy Director for Intelligence to

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FBI Assistant Director James Kallstrom. On 18 June 1997, CIA analysts briefed their results in New York to Kallstrom and about 30 others from the FBI and the Army's Missile and Space Intelligence Center (MSIC). They also showed an early version of their video *(TWA Flight 800: What Did the Eyewitnesses See?)* at this time. On 22 October 1997, CIA analysts briefed Kallstrom in New York again and showed him a more finished version of the video. He expressed his appreciation for CIA's help and his desire to use the CIA video the following month at his news conference announcing the suspension of the criminal investigation. CIA concurred and prepared the video for public release.

4. Had Flight 800's CVR and FDR continued to operate after the initial explosion, the crash investigation would have been simplified considerably.

CVRs have been required since 1967 on all commercial airliners. They typically use a 30-minute, continuous-loop, 4-track tape that records sounds detected by four microphones: one in each pilot's headset, one in the instrument console, and one in the center of the cockpit designed to monitor overall sounds. The CVR often is the most useful source of information to determine the general cause of a crash, but rarely reveals the precise cause.

In addition to providing dialogue and comments from the pilot, copilot, and crew, the CVR serves other vital functions. Analysis of sounds recorded by its multiple microphones can be used to determine if sirens or alarms were activated, or if there was an explosion. If an explosion occurred, CVR analysis can help locate its source.

FDRs have been required since 1958 on all commercial airliners. They typically use a 25-hour continuous-loop tape that records precise flight conditions and diagnostic information on the operation of at least 29 of the aircraft's critical subsystems. These include thrust from each engine, altitude, air speed, compass heading, vertical speed, horizontal speed, pitch, and roll. Analysis of these data is more time-consuming and specialized than analysis of the CVR data, but usually provides vital clues concerning the specific reason for a crash.

Because the CVR and FDR are in the tail section of the plane (to maximize survivability) and the power source is in the front, power can be severed in the event of a breakup of the fuselage. On 52 occasions in the past 16 years, power failure has resulted in lost CVR or FDR data. In the case of TWA Flight 800, power to both the CVR and FDR was severed when the center fuel tank exploded. This contributed to the extraordinary difficulty and expense of that crash investigation.

5. Had Flight 800 gone down two to three miles farther offshore, the sound of the initial explosion would have reached the nearest observers on shore 10 to 15 seconds later than it did. This would have made the sound-propagation analysis considerably less conclusive, because the plane would have hit the water well before the first sound reached the shore.

As it turned out, the plane exploded about 10 miles offshore and hit the water about 49 seconds later, just as sound from the explosion was reaching the closest eyewitnesses on the shore. This coincidence permitted sound propagation analysis to be applied effectively, because analysts could use it to establish that so-called missile sightings described as occurring shortly before the fireballs appeared and plunged into the water took place well after the plane had already exploded.

6. For example, an NBC *Dateline* poll of 503 Americans taken on 14 March 1997 showed that 48 percent believed that the government was covering up the real cause of the crash.

7. Although many eyewitnesses described seeing something akin to a flare or firework traverse the sky and culminate in an explosion, the vast majority of them did not refer to what they saw as a "missile." They repeatedly used the descriptive terms "flare" and "firework."

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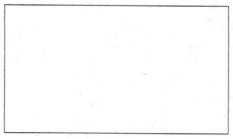
C05460870

Solving the Mystery of the "Missile Sightings"

The Crash of TWA Flight 800 (U)

> **"Capt. David McClaine of Eastwind Airlines, piloting a Boeing 737 commuter flight near the coast of Long Island, had just become the first recorded eyewitness to one of the most deadly and mysterious commercial air crashes in US aviation history."**

is a senior weapons analyst in the Directorate of Intelligence. He received the Intelligence Medal of Merit for his participation in the work described in this article.



"We just saw an explosion out here on Stinger Bee five oh seven."[1]

It was Wednesday, 17 July 1996, 8:31:51 p.m. Capt. David McClaine of Eastwind Airlines, piloting a Boeing 737 commuter flight near the coast of Long Island, had just become the first recorded eyewitness to one of the most deadly and mysterious commercial air crashes in US aviation history. It would be almost a minute before the importance of what McClaine had seen would become clear to the Boston air traffic controller with whom he was speaking.

8:31:57: "Stinger Bee five oh seven, I'm sorry. I missed it. Ah, you're on eighteen. Did you say something else?"

8:32:01: "We just saw an explosion up ahead of us here something [like] about sixteen thousand feet [altitude] or something like that. It just went down—to the water."

Within seconds, other pilots in the vicinity corroborated McClaine's observation.

8:32:25: "Boston, Virgin zero zero nine. I can confirm that, out of my, my nine o'clock position, we just had an ex... it looked like an explosion about five miles away, six miles away."

Up and down the coast of Long Island, and from vantage points as far as 40 miles away in Connecticut, beachgoers, pleasure boaters, construction workers, diners, and others made similar sightings. And from more than 22,000 miles overhead, a military satellite had detected heat from something in the vicinity.

But it would be hours, sometimes days or weeks, before these observations would be assimilated into the official record. For now, the scope of what had happened was unfolding before a very few.

8:32:56: "TWA eight hundred, [call] Center."

It was now 65 seconds after McClaine's first sighting. The controller at Boston Air Route Traffic Control Center, coordinating the flights of the dozen or so aircraft in the vicinity, had noticed one was missing from his radar screen. In a professional but increasingly urgent tone, the controller was trying to elicit a response.

8:33:04: "TWA eight hundred, Center."

TWA Flight 800, a Boeing 747 jumbo jet, had departed New York's John F. Kennedy airport 14 minutes earlier. It was en route to Paris with 230 passengers and crew. In his last contact with Boston Center at 8:30:17, Capt. Ralph Kevorkian, a pilot with 21 years experience flying for TWA, acknowledged clearance from the Boston Center controller to climb to 15,000 feet. But now the plane was nowhere to be seen.

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8:33:09: "TWA eight hundred, if you hear Center ident[ify]."

The Boston controller was becoming increasingly uneasy, as were pilots in the area.

8:33:36, from Alitalia 609: "...just for your information, sir, we are just overhead the explosion, right overhead at this time."

8:33:48, from McClaine: "Stinger Bee, ah, Boston, we are directly over the site where that airplane or whatever it was just exploded and went into the water."

8:34:01, from Boston Center: "Roger that. Thank you very much, sir, we're investigating that right now. TWA eight hundred, Center. TWA eight zero zero, if you hear Center, ident."

8:35:36, again from Boston: "TWA eight hundred, Center."

The gravity of the situation was now evident to all in the small group privy to the interchange that had begun four minutes earlier.

8:35:43, from McClaine: "I think that was him."

8:35:45, from Boston: "I think so."

8:35:48, from McClaine: "God bless him."

CIA Participation

The crash of TWA Flight 800, potentially one of the most lethal international terrorist acts ever perpetrated against the United States, touched off the most extensive, complex, and costly air disaster investigation in US history. Had it been the result of state-sponsored terrorism, it would have been considered an act of war.

FBI and National Transportation Safety Board (NTSB) investigators almost immediately focused on three possible causes: a bomb, a missile, or a mechanical failure. The missile theory seemed particularly plausible because of reports from dozens of eyewitnesses in the Long Island area who, on the evening of 17 July, recalled seeing something resembling a flare or firework ascend and culminate in an explosion.

Because of the possibility that international terrorists may have been involved, the FBI requested CIA's assistance. In accordance with the National Security Act of 1947 and Executive Order 12333, the CIA responded to the FBI's request within 24 hours of the crash. This support consisted primarily of help from the Counterterrorist Center in the Directorate of Operations and from a small group of analysts, including myself, in the Office of Weapons, Technology and Proliferation (now the Office of Transnational Issues, or OTI) in the Directorate of Intelligence. Following a preliminary review of radar and satellite data, the OTI analysts focused on detailed analysis of eyewitness statements provided by the FBI. After eight months of work, they concluded with confidence and full substantiation that the eyewitnesses had not seen a missile. On 28 March 1997, CIA's Deputy Director for Intelligence sent a memorandum to FBI Assistant Director James Kallstrom summarizing the results:

> *Our analysis demonstrates that the eyewitness sightings of greatest concern to us—the ones originally interpreted to be of a possible missile attack—took place after the first of several explosions aboard the aircraft...combined with the total absence of physical evidence of a missile attack, [this] leads CIA analysts to conclude that no such attack occurred.*

These findings also were documented in an unclassified video produced with the aid of animation experts and the Directorate of Intelligence's Video/Multimedia Production Center.[2]

The FBI and others involved in the investigation ultimately concurred with the CIA's conclusions. On 18 November 1997, Kallstrom aired the CIA video in its entirety during a national news conference announcing the suspension of the worldwide criminal probe:[3]

> *We feel very, very comfortable that what [the CIA] videotape portrays is very close...to what happened. The tape was made to explain, first to [the FBI], and then to the public, and the families, and the naysayers...and anyone else out there—the aeronautical engineers—what these 244 people saw. What is the explanation? If they didn't see a missile, what could they have seen? All 244 witnesses saw events*

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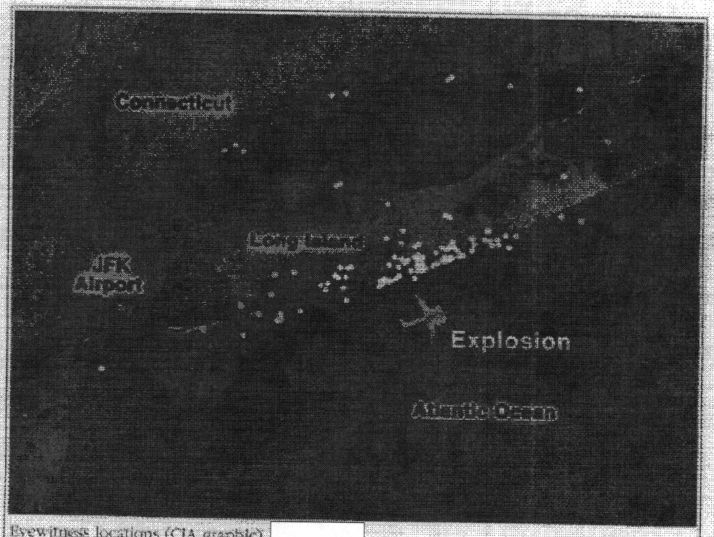
that happened after—after—the Center fuel tank blew up. So they did not see a missile attacking the plane.

—FBI Assistant Director James K. Kallstrom, The Twentieth Century With Mike Wallace, 3 October 1998

Assembling Information

The sources of information used by CIA analysts ultimately included FBI summaries of statements from the 244 eyewitnesses, some containing sight and sound observations, and most containing information that could be used to determine the locations of eyewitnesses at the time of the crash; *DeLorme Version 4.0 Street Atlas USA* commercial mapping software; two sets of radar tracking data (one from a radar at Islip, Long Island, providing data sampled once every 4.6 seconds, the other from a radar at Riverhead, Long Island, providing data sampled once every 12.0 seconds); meteorological data (winds aloft); infrared (heat) data from a US military satellite; the precise times at which the cockpit voice recorder (CVR) and flight data recorder (FDR) ceased operating; the aircraft's location, altitude, speed, and heading at the moment the CVR and FDR ceased operating; the NTSB observation that an abrupt sound was recorded just before the CVR ceased operating; and the NTSB observation that no other unusual activity was recorded on either the CVR or FDR.



Eyewitness locations (CIA graphic).

"A lot of people saw things in the sky. And a lot of people saw what we think is the same thing. Those witnesses, they're good people, and they told us what they saw."

—FBI Assistant Director James K. Kallstrom, Dateline NBC, 14 March 1997

Because Flight 800's radar transponder, CVR, and FDR ceased operating the instant the aircraft exploded, the altitude history of the aircraft from that time until it hit the water was not known.[8] It was also unknown how long this took. Radar data showed only the horizontal motion of the plane after it exploded, and this only crudely.

But we did know the precise location of the plane when it exploded, including its altitude (13,800 feet). As it turned out, this information and the fact that the explosion was extraordinarily loud would prove crucial in solving the mystery of the eyewitness "missile sightings."

The Eyewitness Accounts

Although some eyewitness summary reports proved more useful than others, all were analyzed in painstaking detail, a process that took over a year and entailed more than 2,000 man-hours of work.

When conducting our research, we went to places where large numbers of eyewitnesses had been, and also visited specific vantage points of important eyewitnesses. At several of these locations, videotape templates were made to use in our analysis and to provide accurate backdrops for selected scenes in our video.

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> **"On the whole, the eyewitnesses provided remarkably detailed descriptions that were surprisingly consistent."**

On the whole, the eyewitnesses provided remarkably detailed descriptions that were surprisingly consistent. The crash scenario depicted in the video was the result of the composite analysis of all the eyewitness reports provided to us by the FBI.

Most eyewitnesses were about 10 to 12 miles from where the plane first exploded. The statements varied, but many shared common characteristics:

- A patron outside a local restaurant reported seeing what appeared to be a "shooting star" that grew into an oblong ball of flames that fell from the sky. After the flames fell out of sight behind the sand dunes, he heard two "bangs" that sounded like fireworks in the distance.

- A patron at a local yacht club reported seeing what appeared to be a boat flare ascend for several seconds, expand into a much larger fireball, then split into two "smoky trails" which dropped toward the ocean. She then heard deep rumbling sounds.

- A patron at a local marina reported seeing an orange flare rise in the sky and then come down a little before exploding into "two pieces." She reported that the explosion occurred about 10 seconds after she first saw the flare in the sky.

- Two observers near the ocean reported seeing an ascending flare that exploded into an orange fireball, then descended in "two large flaming chunks" to the ocean's surface. They both reported hearing a "deep thunderous rumble."

- A passenger on a plane reported seeing "a small, flare-like projectile traveling in an east-northeasterly direction" appear in the sky seemingly out of nowhere. It seemed to be ascending, then culminated in a small explosion, followed by a much larger fireball, which appeared to descend toward the water.

- A passenger on a different plane reported seeing an "orange-white flare" ascend, then "bulge" and descend. She likened the ascent and descent to that of a roller-coaster, with the ascent ending in a "big bang," followed by the descent.

Several eyewitnesses made it clear that they had seen only the latter stages of the disaster:

- One observer in a beachfront condominium reported that he saw a fireball, which separated into two fireballs that fell into the ocean. Immediately after the fireballs hit the water, he heard loud sounds.

- A woman on the beach reported seeing a fiery object falling in two main pieces to the water's surface, followed about four seconds later by a rumbling sound.

- An observer on a small boat reported seeing what at first appeared to be a "shooting star," moving in a "downward, 45-degree sloping arc." He then realized he was observing a burning aircraft. He saw one wing separate from the fuselage, and a large "fire trail" of burning fuel erupt. Just as the wing separated, he heard a loud "concussion" sound. The burning plane and wing then quickly dropped to the water's surface. (Of all the known eyewitnesses on the land and water, this person was the closest.)

The most useful reports proved to be those that related observations to specific events in either space or time. For example, an eyewitness report of a loud sound "after the fireballs hit the water" was less useful than one of a loud sound "about four seconds after the fireballs hit the water." An eyewitness description of "a flare-like object rising over the ocean" was less useful than a similar description that referenced identifiable landmarks along the beach. An airline passenger's report of a "flare-like object" was less useful than a similar passenger report that included the observation that the flare-like object appeared in the sky about 10 seconds after a small aircraft flew under the plane on which the observer was traveling.

A few eyewitness reports proved particularly useful. One of the most valuable was from the eyewitness in the beachfront condominium, even though his observations began well after Flight 800 first exploded. His report of loud

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sounds just after the fireballs hit the water made it possible to calculate the elapsed time from when the plane first exploded to when it hit the water. From radar data and onboard recordings, we knew where the plane was when it first exploded. Because we also knew where the observer was located, it was possible to calculate how long it took sound to travel from the explosion to the observer (49 seconds). So his statement established that the aircraft exploded about 49 seconds before it hit the water.

Another excellent eyewitness on the land, whose observations began early and included several identifiable reference points, reported that he watched a white light, perhaps a firework, traveling upward at a steep angle with respect to the horizon. The light "zig-zagged" as it rose, and at the apex of its travel "arched over" and disappeared. This observation lasted about 15 seconds. Two or three seconds later, a fireball appeared in the sky near where the white light had disappeared.

The eyewitness specified a landmark—a house near the beach—over which the white light first appeared and a second house behind which the descending fireball disappeared. We determined precisely where the eyewitness was standing, and then measured the line-of-sight angle between the eyewitness and each of the two houses.

Calculations based on the flight path of Flight 800 with respect to this eyewitness show that when the

"The key to solving the mystery of the "missile sightings" was the use of sound-propagation analysis..."

aircraft first exploded, it was just passing over the house above which the white light first appeared. So the white light the eyewitness described probably was the aircraft briefly ascending and arching over after it exploded, rather than a missile attacking the aircraft.

This eyewitness's visual observations were consistent with the aircraft's known horizontal motion during the 49 seconds which elapsed after the onboard recordings ended. Radar data show that during this time the aircraft traveled about 15 degrees from right to left with respect to this eyewitness—placing it near where the eyewitness claimed the fireball disappeared, behind the second house.

A third important eyewitness was the one in the small boat. Based on his location with respect to where the plane was when it first exploded, analysts were able to calculate that the concussion sound took 42 seconds to reach him. So we knew that the wing separation he observed took place about 42 seconds after the explosion that ended the onboard recordings.

The two distinct trails of fire he described, produced as the plane and wing dropped to the water's surface, were observed by many eyewitnesses and often were described as appearing immediately after the "flare-like object" considered by some to be a possible missile. But because the trail of fire from the flare-like object culminated in this second explosion, the flare-like object cannot have caused the explosion that ended the onboard recordings—that is, the first explosion. It cannot have been, as some have suggested, a missile attack.

Explaining the "Missile Sightings"

The key to solving the mystery of the "missile sightings" was the use of sound-propagation analysis to establish that eyewitnesses who appeared to have seen a missile "streak up" and cause the plane to explode could not have seen such an occurrence. Once it was established that the aircraft exploded about 49 seconds before it hit the water and that one wing detached (producing two discrete fireballs) about seven seconds before water impact, we could be confident that eyewitnesses describing "streaks" that began just a few seconds before the appearance of the two fireballs could not be describing a missile approaching an intact aircraft.[5] The plane had exploded before their observations began. What they were seeing was a trail of burning fuel coming from the aircraft. Nonetheless, some eyewitnesses interpreted the "streak" produced by the burning fuel as a possible missile. This interpretation no doubt was reinforced in their minds when the streak suddenly culminated in an explosion.

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Other descriptions from eyewitnesses who for whatever reason did not report hearing sounds supported this conclusion. For example, a passenger on USAir Flight 217 reported seeing an aircraft fly under him 10 seconds before the appearance of "a small, flare-like projectile traveling in an east-northeasterly direction." Radar tracking of Flight 217 and the small aircraft—later confirmed to be a Navy P-3 Orion—shows that he first saw the flare-like object at about the time Flight 800's CVR detected an onboard explosion. He also specified where the flare-like object first appeared, which coincided with Flight 800's location when it exploded. And his statement that the flare-like object was traveling in an east-northeasterly direction agrees with the direction that Flight 800 is known to have been traveling when it exploded. So the flare-like object he saw almost certainly was Flight 800 just after it exploded, not a missile.

Another factor corroborating this theory was that eyewitnesses who suspected that they had watched a missile destroy an aircraft were puzzled that they had not actually seen the aircraft before the missile hit it. Considering the lighting conditions at the time—just at sunset—the airliner should have been visible to any observer witnessing a missile approach it. But if burning fuel from the crippled aircraft was what they were seeing—rather than a missile streak—there would be no separate aircraft to see.



Reconstructed wreckage, Calverton, Long Island, 6 February 1997 (CIA photo). (U//FOUO)

Meteorological Conditions

Because the speed of sound is affected by altitude, wind, and temperature, we had to correct for these meteorological conditions. For example, the speed of sound at the 13,800-foot altitude where Flight 800's CVR and FDR ceased operating was 1,062 ft/sec (without wind). At sea level, it was 1,116 ft/sec (without wind). It averaged 1,089 ft/sec (without wind). Wind slowed the arrival of the sound from the initial explosion as much as 0.9 seconds for some key eyewitnesses compared to when they would have heard the sound without wind. Independent wind-speed calculations were done for each eyewitness claiming to have heard sounds associated with the disaster. Necessary temperature corrections—other than those in the altitude-sensitive calculations mentioned above—were negligible.

Satellite Data

An orbiting sensor on a US military satellite detected a heat plume associated with the crash of TWA Flight 800.

Combining timing data derived from the CVR, FDR, and this satellite, along with sound-propagation

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analysis based on observations made by the eyewitness on a small boat, we were able to determine that the aircraft's left wing detached —creating two distinct fireballs— just before the satellite's sensor detected the large heat plume. Although the satellite data corroborated our analysis, it was not crucial to our conclusions.

The Loud Sound Controversy

Some have questioned why we believe that the loud boom heard by many eyewitnesses corresponded to the initial explosion of the center fuel tank, and how this sound could be heard by eyewitnesses miles away. They suggest that these eyewitnesses, rather than hearing the explosion of the center fuel tank, may have heard the detonation of the warhead of a shoulder-launched surface-to-air missile at or near the position of Flight 800. Or perhaps they heard the launch of such a missile originating from a boat several miles offshore. Others question whether the CVR would capture the sound of a warhead detonation, if one had occurred. Still others question how we could include the observations of eyewitnesses traveling in other aircraft in our analysis, because such eyewitnesses would be unable to hear the sounds heard by several of the eyewitnesses on the land and water.

To analyze accounts from eyewitnesses who did not report hearing sounds, we used eyewitnesses who did hear sounds to help establish when key events took place, and also to determine the approximate time that elapsed between these events. We then analyzed other eyewitness statements in the context of this template, and generally found them to be consistent.

The loud sound almost certainly was produced by the explosion that severed the power source to the CVR and FDR at the beginning of the catastrophe. If the sound had originated near the aircraft at an earlier time, it is likely that it would have been recorded by the CVR. If it originated later, our estimate that the aircraft took about 49 seconds to hit the water after the initial explosion would increase, making it even less likely that any eyewitness saw a missile cause the initial explosion.

The magnitude of this sound was enormous—loud enough to be described as a "concussion sound" by eyewitnesses more than 11 miles away from where Flight 800 was when its recorders ceased operating, and loud enough to shake a 70-ton bridge at that distance. Based on descriptions by NTSB investigators—including the judgment that the center fuel tank was sealed and contained hot fumes when it exploded, and the judgment that the power source to the CVR and FDR was severed almost immediately by this enormous explosion—a high-energy explosion in this tank appears to be the only plausible source for the initial sound heard by eyewitnesses.

Concerning the issue of whether the sound could have come from a shoulder-launched surface-to-air missile, the sound produced by the warhead of such a missile would be roughly equivalent to the sound produced by a handgrenade. Because Flight 800 exploded in thin air nine miles or more from most eyewitnesses, the chance that any eyewitness would have heard such an explosion even if one occurred is remote. And it is inconceivable that such an explosion could create a concussion sound capable of shaking a 70-ton bridge 11 miles away.

Eyewitnesses probably also could not have heard the launch of such a missile from a boat several miles offshore. The launch of a shoulder-fired missile is quieter than the detonation of its warhead. If such a short-range missile were launched close enough to be heard by eyewitnesses on the shore, it would not have been able to reach Flight 800. And the launch sound would not shake a 70-ton bridge, nor be heard by eyewitnesses up and down the coast of Long Island. If a loud sound associated with the disaster were produced near the shore, it would be heard almost immediately at high intensity by the closest eyewitnesses, and much later and at lower intensity by eyewitnesses several miles away. This would be inconsistent with descriptions given by dispersed eyewitnesses along the shore who all reported hearing a loud concussion sound less than five seconds after the burning debris hit the water.

Concerning the issue of whether the sound of a missile warhead detonation would have been captured and recorded by the CVR, we can-

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EXCERPTS FROM CONVERSATIONS BETWEEN AN AIR TRAFFIC CONTROLLER, THE FLIGHT 800 PILOT, AND A PILOT IN THE CRASH VICINITY—17 JULY 1996 (ALL TIMES APPROXIMATE)

8:30:14 p.m., Boston Air Route Traffic Control Center: TWA eight hundred, climb and maintain one five thousand [15,000 feet].

8:30:17, TWA Flight 800: TWA's eight hundred heavy, climb and maintain one five thousand, leaving one three thousand.

8:31:12: [TWA Flight 800 explodes at an altitude of 13,800 feet, based on post-crash analysis.]

8:31:50, Eastwind Airlines Flight 507: We just saw an explosion out here on Stinger Bee five oh seven.

8:31:51: [Infrared sensor aboard US military satellite detects large heat source in the vicinity of Flight 800 crash.]

8:31:57, Boston: Stinger Bee five oh seven, I'm sorry. I missed it. Ah, you're on eighteen. Did you say something else?

8:32:00: [TWA Flight 800 hits water, based on post-crash analysis.]

8:32:01, Eastwind 507: We just saw an explosion up ahead of us here something [like] about sixteen thousand feet or something like that. It just went down—to the water.

8:32:56, Boston: TWA eight hundred, [call] Center.

8:33:04, Boston: TWA eight hundred, Center.

8:33:09, Boston: TWA eight hundred, if you hear Center ident[ify].

8:33:17, Boston: Stinger Bee, ah, five zero seven, you reported an explosion, is that correct, sir?

8:33:21, Eastwind 507: Yes sir, about, ah, five miles at my eleven o'clock here.

8:33:48, Eastwind 507: [unintelligible] Stinger Bee, ah [unintelligible] Boston, we are directly over the site where that airplane or whatever it was just exploded and went into the water. [Then, from a second operator...] [unintelligible] eighteen, ah, nineteen miles on the two thirty-six radial [unintelligible] Hampton.

8:34:01, Boston: Roger that. Thank you very much, sir, we're investigating that right now. TWA eight hundred, Center. TWA eight zero zero, if you hear Center, ident.

8:35:36, Boston: TWA eight hundred, Center.

8:35:43, Eastwind 507: I think that was him.

8:35:45, Boston: I think so.

8:35:48, Eastwind 507: God bless him.

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Sheet1

(b)(3)

bridge	40.8008N	72.6276w
boat	40.7471N	72.7633w
condo	40.7835N	72.6847W

From [redacted] at CIA

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19-Mar-2012

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(b)(3)

[redacted] did the primary flight dynamic modeling of the Boeing 747 trajectory subsequent to the explosion. This effort also involved discussions with Boeing engineers about the aerodynamic estimates they provided. These discussions resulted in changes which allowed more accurate simulation of the flight. These simulations evaluated the hypothesis that Flight 800 ascended after it exploded. He concluded that if the front third of the aircraft separated shortly after the explosion -- as hypothesized by NTSB analysts -- then the aircraft would ascend shortly thereafter. Such behavior was an important part of the explanation of what was seen by those few eyewitnesses whose observations began just after the aircraft exploded. This simulation also showed that an initial climb is consistent with a good fit of the limited available radar data.

[redacted] suggestion for his contribution [redacted]

APPROVED FOR
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30-Mar-2012

C05782960

CLASSIFICATION

EXECUTIVE CORRESPONDENCE ROUTING SHEET

1. CONTROL NUMBER:	2. SUSPENSE DATE:
3. SUBJECT:	
4. ORIGINATION OFFICE:	5. DATE:

6. PURPOSE:

☐ (b)(3)

7. SUMMARY:

8. COORDINATION:

APPROVED FOR RELEASE DATE:
19-Mar-2012

9. RECOMMENDATION:

10. DATE IN	11. ROUTE TO	12. ACTION (Check a Box)	13. NONCONCUR REASON	14. DATE OUT
	TITLE C/ [redacted] SIGNATURE	☐ SIGNATURE ☐ CONCUR ☐ FYI		
	TITLE C/ [redacted]/OTI SIGNATURE	☐ SIGNATURE ☐ CONCUR ☐ FYI		
	TITLE D/OTI SIGNATURE	☐ SIGNATURE ☐ CONCUR ☐ FYI		
	TITLE DI Registry SIGNATURE	☐ SIGNATURE ☐ CONCUR ☐ FYI		
	TITLE DDI SIGNATURE	☐ SIGNATURE ☐ CONCUR ☐ FYI		
	TITLE Executive Registry SIGNATURE	☐ SIGNATURE ☐ CONCUR ☐ FYI		
	TITLE EXDIR SIGNATURE	☐ SIGNATURE ☐ CONCUR ☐ FYI		
	TITLE ADCI SIGNATURE	☐ SIGNATURE ☐ CONCUR ☐ FYI		

FORM 8/96 **4468**

CLASSIFICATION

CL BY: _____
CL REASON: _____
DECL ON: _____
DRV FRM: _____

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NR

CVR, FDR and Boston Center Time Correlation

CVR (Min:Sec.*)			Boston Center *			FDR Mic Keying (Actual)			FDR Mic Keying (Adjusted)**		
start	end	delta	start	end	delta	open	closed	delta	open	closed	delta
24:41.7	24:48.9	7.20	0024:41.8	0024:49.1	7.30	0024:41.48	0024:49.49	8.01	0024:41.80	0024:49.10	7.30
24:53.4	24:56.7	3.30	0024:53.5	0024:56.8	3.30	0024:52.87	0024:56.88	4.01	0024:53.50	0024:56.80	3.30
25:34.5	25:42.1	7.60	0025:34.6	0025:42.2	7.60	0025:33.88	0025:42.55	8.67	0025:34.60	0025:42.20	7.60
25.47.1	25:53.3	6.20	0025:47.2	0025:53.4	6.20	0025:46.65	0025:53.33	6.68	0025:47.20	0025:53.33	6.13
26:30.3	26:34.3	4.00	0026:30.3	0026:34.3	4.00	0026:29.66	0026:34.28	4.62	0026:30.30	0026:34.28	3.98
28:20.6	28:23.7	3.10	0028:20.8	0028:23.9	3.10	#	#	n/a	#0028:20.80	#0028:23.90	3.10
30:19.2	30:23.7	4.50	0030:19.4	0030:23.9	4.50	0030:18.74	0030:24.06	5.32	0030:19.40	0030:23.90	4.50

* TWA 800 transmissions recorded by Boston Center. Time in UTC (local time 2000 EDT)

** The duration of each ATC transmission made by TWA 800 and recorded by Boston Center was applied to determine the precise start and stop times displayed

This transmission was overlapped by a transmission to TWA's Flight Information Center from a second transmitter. Therefore, the start and termination of this transmission was established from the corresponding transmission recorded by the CVR and Boston Center. This FDR syster groups all VHF transmissions into a single discrete parameter. Therefore, overlapping transmissions from any of the 3 VHF transmitters will be recorded by the FDR as a single transmission.

The correlation points all agreed to within a second. The FDR samples microphone keying for 1/768th of a second every 0.671875 seconds. Therefore, if the microphone is keyed just after the microphone discrete is interrogated it will not be recorded until 0.67 second have elapsed when the next sample is taken. If it is keyed for less than a 0.67 seconds it may not be recorded at all. The radio transmission referenced in the ARTCC and CVR transcript, were established by the CVR specialist manually recording the start and stop of each event.

The FDR data stream was also examined to determine the data resident in the volatile read write buffer at the time power to the DFDR was lost. The read/write buffer can store from 175 to 885 data bits, depending on where in the read/write cycle power is interrupted. In this instance, the power was interrupted as the first 2 bits of the 8 -bit postamble were being written. At this point in the read/write cycle the buffer memory contains the minimum number of bits. Therefore, the last approximately 0.23 seconds of data could not be written to the recording medium when power was removed from the recorder (175 / 768 bit per second = 0.2278 seconds).

The loss of power to the CVR and FDR correlate to within a quarter of a second. The CVR factual report places the end of the CVR recording at 20:31:12.5. The time of the last recorded FDR altitude-fine value is 20:31:11.56. There were 372 bits recorded between the last altitude fine value and the end of the recording. Therefore, the end of the FDR recording can be computed as follows:

20:31:11.56 *(time last altitude fine value recorded)*
00:00:00.48 *(372/768 =0.48 seconds between last altitude fine value and end of recording)*
00:00:00.23 *(number of seconds retained in the volatile write buffers but not recorded)*
20:31:12.27 ***(loss of power to FDR)***

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30-Mar-2012

All formulas and data... re
Aerodynamic effect of loss of forward fuselage: lift coefficient, pitch moment, and drag coefficient (4-6);

See http://www.ntsb.gov/events/TWA800/exhibits/Ex 22C.pdf

Main Wreckage Simulation - Longitudinal Motion Only: Altitude, Pitch Angle, Angle of Attack, Load Factor, Cal. Airspeed, N/S Position (8-13);

See the two trajectory simulations provided. Motion was not "Longitudinal Only" in either simulation.

Main Wreckage Simulation- Left Bank then Right Roll: Altitude, N 1% max, Pitch Angle, Angle of Attack, Cal. Airspeed, Load Factor, Heading (deg), Bank Angle (deg), N/S Position, East n. mi., and North n. mi. (14-24);

See comment above. Bank angle and roll angle are synonymous yet used separately. All trajectory information is contained in the simulations provided.

Main Wreckage Simulation - Left Roll: Altitude, N 1% max, Pitch Angle, Angle of Attack, Equivalent Airspeed, Normal Load Factor-N2 (Gs), Heading - deg, Bank Angle deg, North/South Position, East Distance (n.mi.), and North Distance (n. mi.) (25-35)

See comment above

TWA 800 Radar Data: Radar Map View, Radar North vs. Time and Radar East vs. Time (36-38);

Time (Sec from Explosion)	Latitude	Longitude
0.00	40.64833333	-72.67055556
4.00	40.65027778	-72.66333333
8.70	40.65555556	-72.65250000
13.4	40.66055556	-72.64416667
18.1	40.66388889	-72.63888889
22.8	40.66527778	-72.63583333
27.5	40.66583333	-72.63333333
32.2	40.66555556	-72.62916667
36.9	40.66388889	-72.62611111
41.6	40.66305556	-72.62444444
46.3	40.66222222	-72.62305556
51.0	40.66277778	-72.62388889

Main Wreckage Simulation--Slow Simulations: Roll Angles, Map View, East positions, North positions, and Altitudes (39-43);

All trajectory information is contained in the simulations provided. I do not know what "Slow Simulations" are.

Main Wreckage Simulation--Nominal Simulations: Roll Angles, Map View, East positions, North Positions, and Altitudes (44-48);

All trajectory information is contained in the simulations provided.

Main Wreckage Simulation--Fast Simulations: Roll Angles, Map View, East positions, North positions, and Altitudes (49-53);

All trajectory information is contained in the simulations provided. I do not know what "Fast Simulations" are.

Main Wreckage Simulation--Nose Off at 749 sec: Roll Angle, Map View, East position, North position, and Altitudes (54-58);

All trajectory information is contained in the simulations provided.

Main Wreckage Simulation--Fast Simulations: Roll Angles, Map View, East positions, North positions, and Altitudes (relates back to
Addendum II to NTSB Exh. 22F from NTSB public docket) (59-63);

All trajectory information is contained in the simulations provided.

Main Wreckage Simulation--Nose off at 20:31:17.2: Roll Angle, Map View, East position, North position, and Altitude (64-68);

All trajectory information is contained in the simulations provided.

Formulas & Data records upon which CIA produced animation (69).*

Formulas and data Entered into Computer....
Formulas and data entered into computer simulations regarding the CIA and/or NTSB's zoom climb conclusion (71);

No formulas were entered into the computer. Program used is a six-degree of freedom trajectory program. Formulas are self-contained.

BREAKUP Program (72); I do not understand this.

BALLISTC Program (73);

Longitudinal Motion Simulation Code With and Without Modification for Bank and Roll (74);

All trajectory information is contained in the simulations provided.

Records upon which CIA produced animation (75).*

All trajectory information is contained in the simulations provided.

All records reflecting whether or not the CIA conducted the computer simulations and video animations in-house &, if not, all records of when, where and by whom the computer simulations were performed (77);

All trajectory information is contained in the simulations provided.

Simulations by Whom...
BREAKUP Program; I do not understand this.

BALLISTIC Program;

Longitudinal Motion Simulation Code With and Without Modification for Bank and Roll;

Records upon which CIA produced animation (78-81).*

An outside company developed the computer code used. I am not free to release it.

Computer Simulation Itself ...

The computer simulation and animation programs used by the CIA and/or NTSB;

All trajectory information is contained in the simulations provided.

BREAKUP Program; I do not understand this

BALLISTIC Program;

Longitudinal Motion Simulation Code With and Without Modification for Bank and Roll;

Records upon which CIA produced animation (83-87).*

All trajectory information is contained in the simulations provided.

The **print out of the computer simulations used by the CIA** and/or NTSB (89);

Computer print outs: BREAKUP Program,

BALLISTIC Program, and

Longitudinal Motion Simulation Code With and Without Modification for Bank and Roll (90-91).

All trajectory information is contained in the simulations provided.

Records upon which CIA produced animation (93).*

All records of the **timing sequence** of the zoom climb, including but not limited to, radar, radio transmissions, and flight data recorder (95);

Records re timing sequences--radar, radio, FDR, upon which CIA produced animation (96).*

All trajectory information is contained in the simulations provided.

All records of **the correlation** of the zoom-climb calculations with the actual **radar plot** (98);

Radar plot correlation records upon which CIA produced animation (99) *

All trajectory information is contained in the simulations provided.

All records of the information provided by Boeing to the NTSB used by NTSB to calculate these zoom climb conclusions (101).

Information provided by Boeing upon which CIA produced animation. (102).*

All trajectory information is contained in the simulations provided.

All records of the process by which NTSB arrived at its zoom climb conclusions (104);

All trajectory information is contained in the simulations provided.

All records generated or received upon which CIA produced animation (105).

All records generated or received by NTSB used in its computations of its zoom climb (107);

All records of process upon which CIA produced animation (108).*

All trajectory information is contained in the simulations provided.

C05830172

APPROVED FOR
RELEASE DATE:
30-Mar-2012

MORI DocID: 1215202-B

```
********H    RUN SETUP FOR TWA FLIGHT 800 ANALYSIS          ******
********H    USES BOEING'S SECOND ESTIMATE CL-CD DATA
********H    AERO CENTER OF PRESSURE IS INPUT (SEE ARG2)
********H    EVENT 13 STARTS PROBLEM                        ******
********H    EVENT 30 STARTS POINT MASS (WING BREAK)        ******
********H    EVENTS 21 MARKS MAXIMUM ALTITUDE               ******
********H    Forces altitude up using CRVT table            ******
********H    Uses Rich's 15 Jan 98 radar data               ******
       2L      0 0.                  11.0          D     2  G1
         D     3GMT                  4 0.0         D     5FP1
               6 0.0                 7 0.0               8 0.0
       3L      0 0.                  11.0          D     2  G1
         D     3TLP                  4 0.0         D     5FP1
               6 0.0                 7 0.0               8 0.0
      10L      0 0.                  11.0          D     2  G1
         D     3TLP                  4 0.0         D     5FP1
               6 0.0                 7 0.0               8 0.0
      11L      0 0.                  11.0          D     2  G1
         D     3TLP                  4 0.0         D     5FP1
               6 0.0                 7 0.0               8 0.0
      12L      0 0.                  11.0          D     2  G1
         D     3TLP                  4 0.0         D     5FP1
               6 0.0                 7 0.0               8 0.0
      13L      0 0.                  11.0          D     2  G1
         D     3TLP                  4 0.0         D     5FP1
               6 0.0                 7 0.0               8 0.0
      20L      0 0.                  11.0          D     2  G7
         D     3VDR                  4 0.0         D     5DVDR
               6 0.0                 7 0.0               8 0.0
      30L      0 0.                  11.0          D     2  G1
         D     3H                    4 1100.       D     5VDR
               6 0.0                 7 0.0               8 0.0
      40L      0 0.0                 11.0          D     2  G1
         D     3TDURP                4 0.0         D     5FP1
               6 0.0                 7 0.0               8 0.0
      50L      0 0.                  11.0          D     2  G7
         D     3H                    4 60.0        D     5VDR
               6 0.0                 7 0.0               8 0.0
      50L      0 0.                  12.0          D     2  G1
         D     3TC1                  4 80.         D     5FP1
               6 0.0                 7 0.0               8 0.0
MPEXM000  ITRF  0.0
TSPXM  2  FESN   50.
*************************************************************************
*************************************************************************
TRAKM  2 DIN     B            DGEN    1
TRAKM  2  CTSID  2.0           HSLR   30.0          LATR   40.8008
TRAKM  2  LONR   -72.6276      ELRK   -1.0          ELRCC  90.0
ITIFM  2  T1VAL  1.0           T2VAL  1.0          T3VAL  1.0
PFRPM  0  RSED1F 1.0           MAXKF  9.0          QIMPF  2.0
PFRPM  0  COVF   1.0           ITPRF  -9.0         PINF   0.0
PFRPM  0  I1FL   2.0           T1MD   -1.0         T2MD   -1.0
PFRPM  0TDT1CVT GMT           D      GMT
                RANG          D      RANG
         *   T1MD SECOND AND THIRD VALUES ARE THE NUMBER OF POINTS IN THE
         *   T1VAL TABLE FOLLOWED BY THE INVERSE OF THE SIGMA ACCURACY
         *   (IN THIS CASE IT IS 1/0.05 NAUTICAL MILES).
PFRPM000T T1MD  1.                  7.0                 20.
PFRPM  0  BNDS   200.               1 200.              2 200.
PFRPM  0       3 200.               4 200.              5 200.
PFRPM  0       6 200.               7 200.              8 200.
```

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```
PFRPM  0        9 200.          10 200.          11 200.
PFRPM  0       12 200.          13 200.          14 200.
ITERM000T ITVT  1.0              50.              13.
        D       ARG1T            -4.              0.001
                0.               0.               0.
                0.               0.               0.
                2.0              50.              13.
        D       ARG1T            -6.              0.001
                0.               0.               0.
                0.               0.               0.
                3.0              50.              13.
        D       ARG1T            -8.              0.001
                0.               0.               0.
                0.               0.               0.
                4.0              50.              13.
        D       ARG1T            -10.             0.001
                0.               0.               0.
                0.               0.               0.
                5.0              50.              13.
        D       ARG1T            -12.             0.001
                0.               0.               0.
                0.               0.               0.
                6.0              50.              13.
        D       ARG1T            -14.             0.001
                0.               0.               0.
                0.               0.               0.
                7.0              50.              13.
        D       ARG1T            -16.             0.001
                0.               0.               0.
                0.               0.               0.
                8.0              50.              13.
        D       ARG1T            -18.             0.001
                0.               0.               0.
                0.               0.               0.
                9.0              50.              13.
        D       ARG1T            -20.             0.001
                0.               0.               0.
                0.               0.               0.
ITIFM  0  T1VAL 1.0
ITIFM  0T T1VAL 22.8             1.90
                27.5             2.02
                32.2             2.21
                36.9             2.39
                41.6             2.48
                46.3             2.56
                51.0             2.51
ITIFM000T CVRT  1.               0.               50.
                0.       D       TC1              .0
                49.0             .0               .0
                .0               .0               .0
                2.               0.               50.
                0.       D       RANG             .0
                2.51             .0               .0
                .0               .0               .0
                3.               0.               20.
                0.       D       H                .0
                17000.           .0               .0
                .0               .0               .0
PFRPM000  MD1T  1.       MD2T    1.
PFRPM000T MD1T  1.               1.               1.0
PFRPM000T MD2T  1.               1.               32.
```

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MUKT DOCID: 1215202-B

```
PFRPM000T MD3T  1.                    1.                    0.005
*************************************************************************
*************************************************************************
ENVRM  2T GRAVTT 2.00000000            0.0                  0.00108271604
                 0.0                   3.00000000            0.0
                -0.2630140E-05         0.0                   4.00000000
                 0.0                  -0.2349500E-05         0.0
SERVM  2 IITPR2T 6
INFXM  2ICTPRI2T 0.3
INFXM  2  TPRV2T 1.
INFXM  2T TPRV2T TC1                   H                     MACH
                Q                      RANG                  VAMI
                CZ                     CX                    CM
                FAZB                   FAXB                  OMYB
                ASZB                   FTXB                  D0MYB
                ALFA                   MAYB                  IYY
                GAMA                   LATV                  L0NV
                ELRLH                  AZRLN                 GMT
                CXB                    VDR                   RB1
                CM1T                   CL                    CD
                ASXB                   DVDR                  VCAL
                ARGA                   ARGB                  BANK
                ARGF                   OMXB                  D0MXB
                ELR                    BETA                  CN
                MAZB                   MAXB                  ARGC
                ARGD                   ARGE                  ARGF
                ARGG                   ARGH                  ARGI
                AZR                    RGR
INFXM  2  PL0T2T -1
INFXM  2ICPLIN2T 0.3
INFXM  2T PL0T2T TC1                   H                     MACH
                Q                      RANG                  VAMI
                CZ                     CX                    CM
                FAZB                   FAXB                  OMYB
                ASZB                   FTXB                  D0MYB
                ALFA                   MAYB                  IYY
                GAMA                   LATV                  L0NV
                ELRLH                  AZRLN                 GMT
                CXB                    VDR                   RB1
                CM1T                   CL                    CD
                ASXB                   DVDR                  VCAL
                ARGA                   ARGB                  BANK
                ARGF                   OMXB                  D0MXB
                ELR                    BETA                  CN
                MAZB                   MAXB                  ARGC
                ARGD                   ARGE                  ARGF
                ARGG                   ARGH                  ARGI
                AZR                    RGR
CYCXM  2  DTEA   0.10          Q0P1    1.0          TC1     0.0
CYCXM  2  LFDT1 0.10           TC4     0.0
CYCXM  2  N0ISB  0.0
DPGXM 12 IGCF    0.0           TRKF    0.0
ENVRM  2  ATCF   4.0           ATUF    0.0          AWT     1.0
ENVRM  2  GRVDF  1.0           VWF     -1.0
ENVRM  2I VWT   H      6
                 0.0                   12.0
                 1000.0                12.0
                 2000.0                14.0
                 3000.0                17.0
                 4000.0                17.0
                 5000.0                19.0
```

MORI DocID: 1215202-B

```
                    6000.0                19.0
                    7000.0                17.0
                    8000.0                16.0
                    9000.0                12.0
                    10000.0               12.0
                    11000.0               12.0
                    12000.0               16.0
                    13000.0               16.0
                    14000.0               17.0
                    15000.0               19.0
                    16000.0               21.0
                    17000.0               29.0
                    18000.0               33.0
ENVRM   2I AWT    H       6
                    0.0                   270.0
                    1000.0                270.0
                    2000.0                280.0
                    3000.0                285.0
                    4000.0                290.0
                    5000.0                303.0
                    6000.0                310.0
                    7000.0                315.0
                    8000.0                320.0
                    9000.0                330.0
                    10000.0               335.0
                    11000.0               320.0
                    12000.0               295.0
                    13000.0               290.0
                    14000.0               300.0
                    15000.0               303.0
                    16000.0               305.0
                    17000.0               315.0
                    18000.0               315.0
INTXM   2 INIV     50.0          DTMAX   2.0             INTGP 2.0
PROPM   2 DL0     U
RMOTM   2  ETA2     0.0         ETA3    70.93          DHI     2
RMOTM   2 DIN     C
SERVM   2 IITPRNT 6.0
**********  BEFORE BOOM CRUISE VELOCITY=619.05 FT/SEC (366.8 KNOTS)
**********  THIS IS BASED ON IAS=292 KNOTS AND THE ATMOSPHERE AND
**********  AND WINDS USED HERE.
TMOTM   2   AZL    70.93          VAMI0   644.0          DIN      C
TMOTM   2   LATL   40.65          DL0       1             L0NL    -72.67
TMOTM   2   AZVA0  70.93          GAMA0   2.1             HSLL     13760.0
TMOTM   2   ALFA0  4.02559        OMYB0   -0.
TMOTM  10 DL0      1              TMTF    1.00000000     HSLL   0.0
INFXM   2   EVPF     0.00000000   PL0TT  -1.00000000
PROPM  11 DL0      1
TMOTM  12 DL0      1
AERMM   2 DIN     C              DL0     2
AERMM  10 DIN     C              DL0     2
AERMM   2   CLDF   0.0            CNSF    6.0             CMSF   0.0
AERMM   2   CXSF   0.0            CM0MT   0.0
AERMM   2   S      5500.0         RB1     27.31
AERMM   2I CZ1T   ALFA     6     NORMAL FORCE COEFFICIENT
                    -180.0                 0.0000
                    -170.0                -0.6320
                    -160.0                -0.9280
                    -140.0                -1.1600
                    -120.0                -1.2560
                     -90.0                -1.6200
```

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MORT DOCID: 12152028

-40.0	-1.4500
-20.0	-1.1600
-12.0	-0.8900
-8.0	-0.6706
-4.0	-0.3265
-2.0	-0.1556
0.0	0.0147
2.0	0.1845
4.0	0.3542
6.0	0.5198
8.0	0.6791
10.0	0.7900
12.0	0.8972
14.0	0.9733
16.0	1.0476
18.0	1.0892
20.0	1.1600
25.0	1.2541
30.0	1.3400
40.0	1.4500
60.0	1.5700
90.0	1.6200
120.0	1.2560
140.0	1.1600
160.0	0.9280
170.0	0.6320
180.0	0.0000

AERMM 2 CX1T -1.0 CZ1T -1.0 CM1T 0.0
AERMM 2I CX1T ALFA 6 AXIAL FORCE COEFFICIENT

-180.0	-0.0150
-170.0	0.0483
-160.0	0.0021
-140.0	0.0080
-120.0	0.0035
-90.0	0.0000
-40.0	-0.0080
-20.0	-0.0170
-12.0	-0.0230
-8.0	0.0088
-4.0	0.0226
-2.0	0.0212
0.0	0.0196
2.0	0.0127
4.0	0.0001
6.0	-0.0197
8.0	-0.0411
10.0	-0.0483
12.0	-0.0524
14.0	-0.0500
16.0	-0.0456
18.0	-0.0312
20.0	-0.0210
25.0	-0.0136
30.0	-0.0114
40.0	-0.0080
60.0	-0.0035
90.0	0.0000
120.0	-0.0035
140.0	-0.0080
160.0	-0.0021
170.0	-0.0483

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MODEL DOCID: 1215202-B

```
                  180.0                  -0.0150
AERMM  2I CM1T  ALFA     6       MOMENT COEFFICIENT
                 -181.0                  1.0
                  181.0                  1.0
AERMM 13ICCM0MT 1.0
SERVM 13  ARG1T 1.0
SERVM 13I ARG1T TC1      6       CENTER OF PRESSURE (FT) (CG AT 120.67)
                -100.                    120.3
                   0.                    119.0253480
                   2.5                   120.4804453
                   5.0                   120.9063451
                   7.0                   121.1161539
                  21.9593068             122.6962042
                  23.7958938             119.7737504
                  27.9065998             119.9909770
                  34.6842718             121.6788974
                  40.                    122.2024562
                  50.                    122.
SERVM 13I ARG2T ALFA     6       NORMAL FORCE MULTIPLIER
                -181.0                   -1.0
                 181.0                   -1.0
SERVM 13I ARG3T ALFA     6       AXIAL FORCE MULTIPLIER
                -181.0                   -1.0
                 181.0                   -1.0
SERVM 13I ARG4T TC1      6       AXIAL FORCE BIAS MULTIPLIER
                 0.0                      0.0
                 0.5                      0.0381
                 1.0                      0.1464
                 1.5                      0.3087
                 2.0                      0.5
                 2.5                      0.6913
                 3.0                      0.8535
                 3.5                      0.9619
                 4.0                      1.0
                 100.0                    1.0
********H    NOTE: CX BIAS IS CALCULATED AS ARG1 AND SHIFTED INTO CXB.
********H             USING CXB=-K1*COS(ALFA)-K2*COS(ALFA)**2
********H          ARG2 CALCULATES CM--A2C1=1/RB1, A2C2=CGREF/RB1 AND
********H          ARG1T = CENTER OF PRESSURE (FT)
********H          ARG3 CALCULATES THRUST MULTIPLIER, F(ALFA)
********H          ARG6 CALCULATES RANGE RATE
********H          ARG7 CALCULATES LIFT COEFFICIENT
********H          ARG8 CALCULATES DRAG COEFFICIENT
********H          ARG9 CALCULATES MOMENT COEFF ABOUT 1/4C OF MAC
JUNKM 10 DIN       U            DL0     1
JUNKM 13  VRF1   3.0            DVTBR1 CXB            DRVAR1 ARG1
JUNKM 13  VRF2   3.0            DVTBR2 CM1T           DRVAR2 ARG2
JUNKM 13  VRF3   3.0            DVTBR3 FTT            DRVAR3 ARG3
JUNKM 13  VRF4   3.0            DVTBR4 CZ1T           DRVAR4 ARG4
JUNKM 13  VRF5   3.0            DVTBR5 CX1T           DRVAR5 ARG5
SERVM 13  A1C1   -0.041         DA1V1  ALFA            A1FV1 4.0
SERVM 13  A1C2   -0.025         DA1V3  ALFA            A1FV3 1504.
SERVM 13 DA1V2   ARG4T          DA1V4  ARG4T           A1FV2 9.0
SERVM 13  A1FV4  9.0
SERVM 13  A2C1   0.03662        DA2V1  ARG1T           A2FV1 9.0
SERVM 13  A2C2   -4.4185        DA2V2  CZ             DA2V3  CZ
SERVM 13  A3C1   0.45           DA3V1  ALFA            A3FV1 4.0
SERVM 13  A3C2   0.05           DA3V3  ALFA            A3FV3 1504.
SERVM 13  A3B    0.5
SERVM 13  A4C1   1.0            DA4V1  ARG2T           A4FV1 9.0
SERVM 13  A5C1   1.0            DA5V1  ARG3T           A5FV1 9.0
```

```
SERVM 13  A6C1  1.0          DA6V1  VAMI          DA6V2  GAMA
SERVM 13  A6FV2 4.
SERVM 13  A7C1  -1.0         DA7V1  CZ            DA7V2  ALFA
SERVM 13  A7C2  1.0          DA7V3  CX            DA7V4  ALFA
SERVM 13  A7FV2 4.0           A7FV4 3.
SERVM 13  A8C1  -1.0         DA8V1  CZ            DA8V2  ALFA
SERVM 13  A8C2  -1.0         DA8V3  CX            DA8V4  ALFA
SERVM 13  A8FV2 3.0           A8FV4 4.
SERVM 13  A9C1  1.0          DA9V1  CM            DA9V3  CZ
SERVM 13  A9C2  -0.32955
PROPM  2 DIN    C            DL0    U
PROPM  2  WPI   200000.0
STRTM 13  IDW   294606.0
PROPM  2  DWT   1.0
PROPM  2I FTT   TC1    6
                -100.0              70620.0
                20000.0             70620.0
PROPM  2I DWT   TC1    6
                -100.0              10.0
                20000.0             10.0
STRTM  2I IXT   TC1    6
                 -100.0              1000000000.0
                 20000.0             1000000000.0
STRTM  2I IYT   TC1    6
                 -100.0              15780000.0
                 20000.0             15780000.0
STRTM  2I IZT   TC1    6
                 -100.0              1000000000.0
                 20000.0             1000000000.0
********H     FOLLOWING INPUTS CAUSE SWITCH TO BALLISTIC TRAJ  ********
********H     ARG3T IS BALLISTIC DRAG COEFFICIENT              ********
AERMM 30  CZ1T  0.0          CM1T  0.0
AERMM 30ICCX1T  1.0
SERVM 30  ARG2T 0.0          ARG3T 0.066          A2C1   0.0
SERVM 30  A1C1  0.0          A1C2  0.0            CM0MT  0.0
RMOTM 30 DHI    5            DIN     E            RMTF   1.
RMOTM 30  OMYB  0.
DPGXM 30 IGCF   1.
        C       0.0
CONTROL CARD    1.0
```

Sheet1

	Recorder Down t=0			Apex t=15 sec			Right Wing Fail t=42		
	Longitude	Latitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)
	72.687	40.646	13820	40.6522	72.664	16800	40.6661	72.6315	6000
Witness Name	Longitude	Latitude		1	2	3	4		
1.	72.6276	40.8008			X				
2.	72.7539	40.7669			X				
3.	72.85	40.74		X					
4.	73.094	40.7198		X					
5.	73.1575	40.6532			X				
6.	72.2448	41.0171		X					
7.	72.7539	40.767		X					
8.	72.8542	40.7358		X					
9.	72.8667	40.7333		X					
10	72.807	40.794		X					
11	72.807	40.794		X					
12	72.64	40.7988			X				
13	72.7565	40.8009		X					
14	72.6695	40.7897		X					
15	72.7358	40.7841		X					
16	72.85	40.74		X					
17	72.85	40.74		X					
18	73.0444	40.9783		X					
19	72.2	41.25		X					
20	72.5538	40.8418		X					
21	72.7515	40.7815		X					
22	72.8117	40.8383							
23	73.5029	40.5945		X					
24	72.6876	40.8125		X					
25	72.8193	40.7495		X					
26	72.7633	40.7471		X					
27	73.3654	40.5784							
28	72.6268	40.8278		X					
29	72.8542	40.7367		X					
30	72.5035	40.8443		X					
31	73.0758	40.7125		X					
32	72.6904	40.7833		X					

Sheet1

33.			72.8151	40.7748		X						
34.			73.0449	40.9783		X						
35.			72.515	40.8514		X						
36.			72.7527	40.7687			X					
37.			72.85	40.74		X						
38.			72.2576	40.9192		X						
39.			72.7349	40.7698		X		1				
40.			72.6552	40.7915		X						
41.			72.6638	40.7982		X						
42.			72.8845	40.7369		X						
43.			72.6397	40.7961		X						
44.			72.6846	40.7868		X						
45.			72.1838	40.9083		X						
46.			72.844	40.9231			X					
47.			72.9328	40.7517					X			
48.			72.6461	40.7939			X					
49.			72.4754	40.8383		X						
50.			72.4754	40.8383		X						
51.			72.6454	40.7941		X						
52.			72.6501	40.8198		X						
53.			73.0822	40.7356			X					
54.			?	?			X	2				
55.			?	?		X						
56.			?	?		X						
57.			72.6503	40.7928		X						
58.			72.6594	40.802		X		1				
59.			72.6663	40.8244		X						
60.			72.8079	40.8742		X		1				
61.			?	?		X		1				
62.			?	?			X					
63.			72.7539	40.7669			X					
64.			?	?								
65.			72.6507	40.8194		X						
66.			72.6125	40.8038		X						
67.			72.7539	40.7669		X						
68.			72.8313	40.797		X		2				
69.			73.0287	40.7431		X						

000751

70.		72.7539	40.7669		X						
71.		73.1828	40.7535								
72.		?	?		X		1				
73.		72.7762	40.7624		X						
74.		?	?		X						
75.		?	?								
76.		72.7499	40.8045		X			X			
77.		72.815	40.7747		X						
78.		72.8542	40.7807		X						
79.		?	?		X						
80.		72.7621	40.8282		X						
81.		72.6705	40.796		X		1				
82.		?	?		X						
83.		73.2595	40.623			X					
84.		72.6454	40.7998		X						
85.		72.7369	40.7822		X						
86.		72.6664	40.8244		X						
87.		?	?		X						
88		72.7097	40.6167			X					
89		?	?		X						
90		?	?		X						
91		?	?		X						
92		72.773	40.7022		X						
93.		?	?		X						
94.		73.0144	40.7134		X						
95.		72.8725	40.7303		X						
96.		72.7486	40.7661		X						
97.		73.3956	41.0833		X						
98.		?	?		X						
99.		72.4417	41.254		X						
100.		73.0566	41.2227		X						
101.		73.0566	41.2227		X						
102.		72.6526	41.2672		X						
103.		73.3748	41.0678		X						
104.		?	?								
105.		72.7723	40.7632		X						
106.		72.7097	40.6167			X					

000752

107.		72.5084	40.8752		X						
108.		72.8542	40.7807		X						
109.		72.6687	40.7883		X						
110.		72.4754	40.8383		X						
111.		72.9032	40.7961			X					
112.		72.7565	40.8009		X						
113.		72.7565	40.8009		X						
114.		72.6833	40.7842		X						
115.		72.6833	40.7842		X						
116.		72.6833	40.7842		X						
117.		73.3696	40.6627		X						
118.		?	?			X					
119.		?	?		X						
120.		?	?		X						
121.		72.9032	40.7961		X						
122.		73.4577	40.6491			X					
123.		72.9336	40.752		X						
124.		72.9336	40.752		X						
125.		72.7723	40.7632		X						
126.		72.7465	40.7667		X						
127.		72.7527	40.7687		X						
128.		72.6876	40.8125		X						
129.		72.8314	40.7424		X						
130.		72.8868	40.7252		X						
131.		72.8602	40.735		X						

Witness Name	Longitude	Latitude		1	2	3	4
22.	72.8117	40.8383					
27.	73.3654	40.5784					
64.	?	?					
71.	73.1828	40.7535					
104	?	?					
3.	72.85	40.74		X			
4.	73.094	40.7198		X			
6.	72.2448	41.0171		X			
7.	72.7539	40.767		X			
8.	72.8542	40.7358		X			
9.	72.8667	40.7333		X			
10	72.807	40.794		X			
11	72.807	40.794		X			
13	72.7565	40.8009		X			
14	72.6695	40.7897		X			
15	72.7358	40.7841		X			
16	72.85	40.74		X			
17	72.85	40.74		X			
18.	73.0444	40.9783		X			
19.	72.2	41.25		X			
20.	72.5538	40.8418		X			
21.	72.7515	40.7815		X			
23.	73.5029	40.5945		X			
24.	72.6876	40.8125		X			
25.	72.8193	40.7495		X			
26.	72.7633	40.7471		X			
28.	72.6268	40.8278		X			
29.	72.8542	40.7367		X			
30.	72.5035	40.8443		X			
31.	73.0758	40.7125		X			
32.	72.6904	40.7833		X			
33.	72.8151	40.7748		X			

34.		73.0449	40.9783		X			
35.		72.515	40.8514		X			
37.		72.85	40.74		X			
38.		72.2576	40.9192		X			
40.		72.6552	40.7915		X			
41.		72.6638	40.7982		X			
42.		72.8845	40.7369		X			
43.		72.6397	40.7961		X			
44.		72.6846	40.7868		X			
45.		72.1838	40.9083		X			
49.		72.4754	40.8383		X			
50.		72.4754	40.8383		X			
51.		72.6454	40.7941		X			
52.		72.6501	40.8198		X			
55.		?	?		X			
56.		?	?		X			
57.		72.6503	40.7928		X			
59.		72.6663	40.8244		X			
65.		72.6507	40.8194		X			
66.		72.6125	40.8038		X			
67.		72.7539	40.7669		X			
69.		73.0287	40.7431		X			
70.		72.7539	40.7669		X			
73.		72.7762	40.7624		X			
74.		?	?		X			
76.		72.7499	40.8045		X			
77.		72.815	40.7747		X			
78.		72.8542	40.7807		X			
79.		?	?		X			
80.		72.7621	40.8282		X			
82.		?	?		X			
84.		72.6454	40.7998		X			
85.		72.7369	40.7822		X			
86.		72.6664	40.8244		X			
87.		?	?		X			
89.		?	?		X			
90.		?	?		X			

91	?	?		X			
92	72.773	40.7022		X			
93.	?	?		X			
94.	73.0144	40.7134		X			
95.	72.8725	40.7303		X			
96.	72.7486	40.7661		X			
97.	73.3956	41.0833		X			
98.	?	?		X			
99.	72.4417	41.254		X			
100	73.0566	41.2227		X			
101	73.0566	41.2227		X			
102.	72.6526	41.2672		X			
103.	73.3748	41.0678		X			
105.	72.7723	40.7632		X			
107.	72.5084	40.8752		X			
108.	72.8542	40.7807		X			
109.	72.6687	40.7883		X			
110.	72.4754	40.8383		X			
112.	72.7565	40.8009		X			
113.	72.7565	40.8009		X			
114.	72.6833	40.7842		X			
115.	72.6833	40.7842		X			
116.	72.6833	40.7842		X			
117.	73.3696	40.6627		X			
119.	?	?		X			
120.	?	?		X			
121.	72.9032	40.7961		X			
123.	72.9336	40.752		X			
124.	72.9336	40.752		X			
125.	72.7723	40.7632		X			
126.	72.7465	40.7667		X			
127.	72.7527	40.7687		X			
128.	72.6876	40.8125		X			
129.	72.8314	40.7424		X			
130.	72.8868	40.7252		X			
131.	72.8602	40.735		X			
1.	72.6276	40.8008			X		

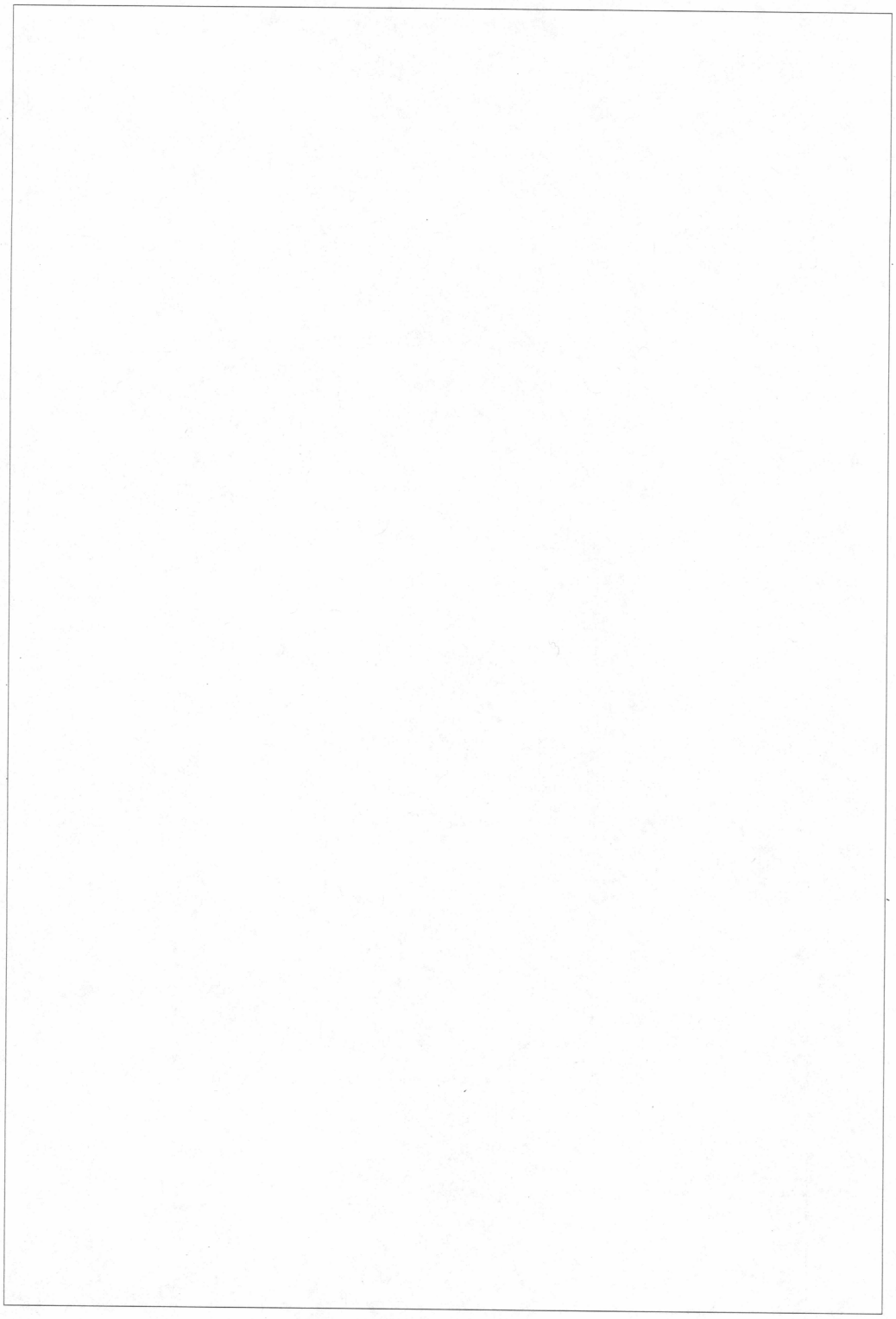
Sheet1

2.		72.7539	40.7669			X		
5.		73.1575	40.6532			X		
12.		72.64	40.7988			X		
36.		72.7527	40.7687			X		
46.		72.844	40.9231			X		
48.		72.6461	40.7939			X		
53.		73.0822	40.7356			X		
62.		?	?			X		
63.		72.7539	40.7669			X		
83.		73.2595	40.623			X		
88.		72.7097	40.6167			X		
106.		72.7097	40.6167			X		
111.		72.9032	40.7961			X		
118.		?	?			X		
122.		73.4577	40.6491			X		
39		72.7349	40.7698			X		
58.		72.6594	40.802		X		1	
60.		72.8079	40.8742		X		1	
61.		?	?		X		1	
68.		72.8313	40.797		X		1	
72.		?	?		X		1	
81.		72.6705	40.796		X		1	
54.		?	?		X		1	
47.		72.9328	40.7517			X	2	
75.		?	?					X
								X

000757

C05782770

Sheet1



000758

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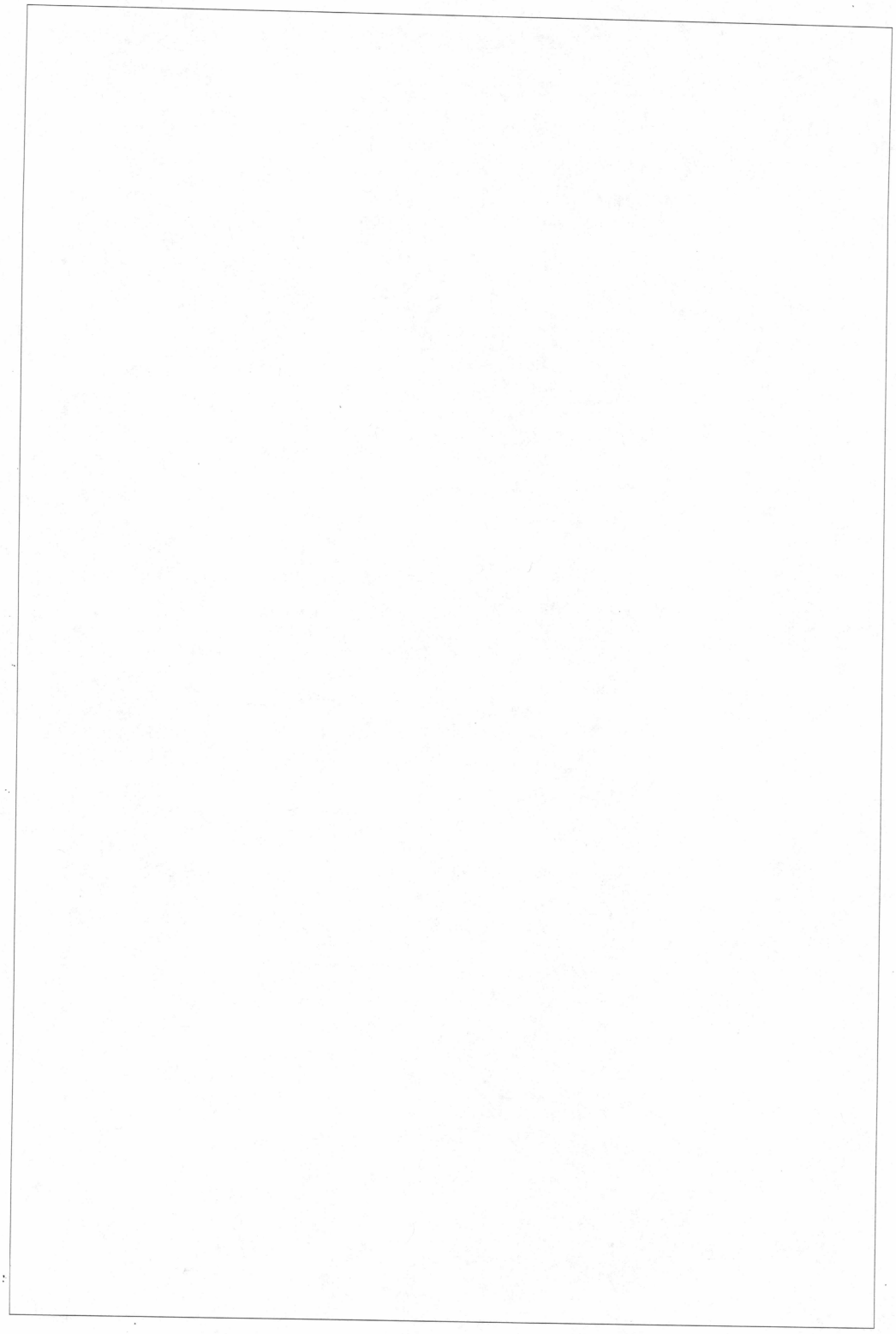
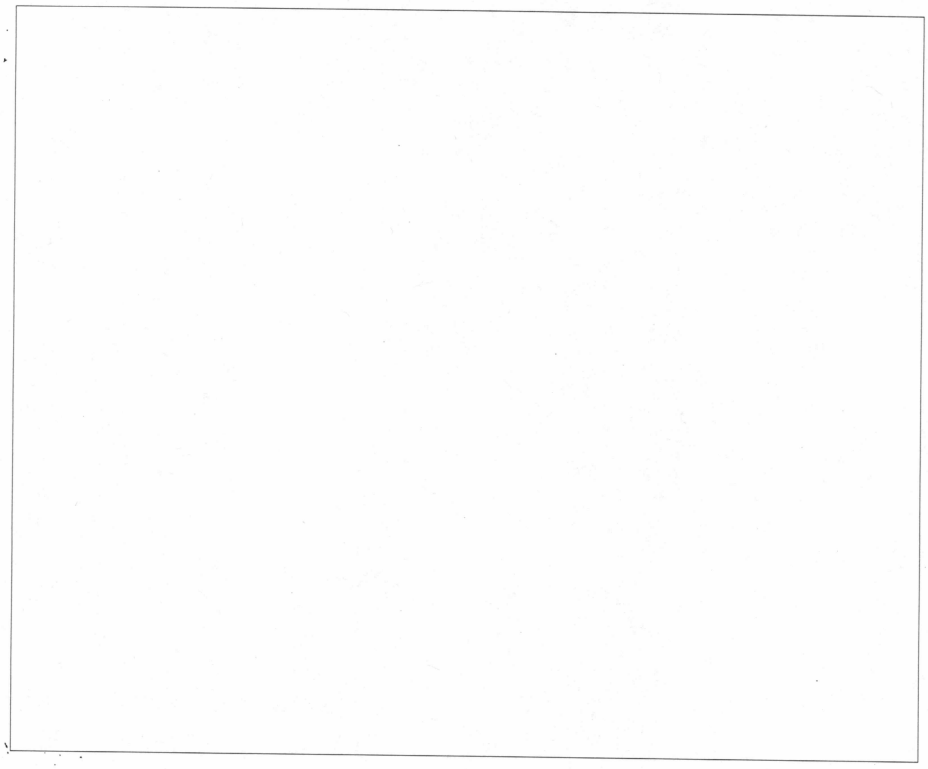
Sheet1



000759

C05782770

Sheet1



000760

(b)(6)
(b)(7)(c)

			40.64889	72.67139										
			Recorder Down t=0			Apex t=15 sec			Right Wing Fail t=42					
	Witness name		Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)			
1.			**40.64889**	**72.67139**	**13760**	**40.6522**	**72.664**	**16800**	**40.6661**	**72.6315**	**6000**	**0.017453**		
2.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		
3.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		
4.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		
5.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		
6.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		
7.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		
8.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		
9.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		
10.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		
11.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		
12.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		
13.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		
14.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		
15.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		
16.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		
17.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		
18.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		
19.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		
20.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		
21.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		
22.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		
23.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		
24.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		
25.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		
26.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		
27.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		
28.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		
29.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		
30.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		
31.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		
32.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		
33.			40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453		

APPROVED FOR RELEASE DATE:
28-Mar-2012

Sheet1

000761

				Ground	Ground	Ground	Az (deg)	Az (deg)	Az (deg)	
	Witness Location		Witness	Dist (ft)	Dist (ft)	Dist (ft)	[1]	[2]	[3]	Closest Az
Witness name	Latitude	Longitude	Azimuth	t=0	t=15	t=42	t=0	t=15	t=42	(deg)
34.	40.9783	73.0449	?	158247	158674	161124	139.24	138.40	134.81	#VALUE!
35.	40.8514	72.515	?	85533	83468	74822	210.38	209.59	205.50	#VALUE!
36.	40.7687	72.7527	?	49119	49037	50205	152.75	149.98	138.12	#VALUE!
37.	40.74	72.85	?	59503	60561	66125	123.87	121.85	113.97	#VALUE!
38.	40.9192	72.2576	?	150855	148521	138431	229.35	229.18	228.32	#VALUE!
39.	40.7698	72.7349	?	47445	47137	47387	158.27	155.42	142.89	#VALUE!
40.	40.7915	72.6552	?	52182	50841	46182	184.92	182.74	171.84	#VALUE!
41.	40.7982	72.6638	?	54473	53226	48978	182.21	180.06	169.49	#VALUE!
42.	40.7369	72.8845	?	67078	68324	74536	118.51	116.80	110.18	#VALUE!
43.	40.7961	72.6397	?	54377	52888	47447	189.28	187.30	177.26	#VALUE!
44.	40.762	72.7763	?	50408	50650	53134	144.85	142.18	131.10	#VALUE!
45.	40.9083	72.1838	?	164504	162138	151879	235.07	235.00	234.60	#VALUE!
46.	40.9231	72.844	?	110740	110553	110534	154.46	153.24	147.89	#VALUE!
47.	40.7517	72.9328	?	81393	82673	88920	117.33	115.94	110.45	#VALUE!
48.	40.7939	72.6461	?	53325	51894	46765	187.54	185.47	175.05	#VALUE!
49.	40.8383	72.4754	?	87741	85536	76154	218.16	217.58	214.53	#VALUE!
50.	40.8383	72.4754	?	87741	85536	76154	218.16	217.58	214.53	#VALUE!
51.	40.7811	72.6944	?	48616	47737	45384	172.48	169.86	157.46	#VALUE!
52.	40.8198	72.6501	?	62584	61221	56268	185.40	183.60	174.76	#VALUE!
53.	40.7356	73.0822	?	117873	119527	127116	105.42	104.60	101.35	#VALUE!
54.	40.7223	73.1542	?	136127	137899	145924	101.18	100.52	97.90	#VALUE!
55.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
56.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
57.	40.7928	72.6503	?	52787	51397	46481	186.34	184.23	173.58	#VALUE!
58.	40.802	72.6594	?	55916	54626	50140	183.40	181.33	171.15	#VALUE!
59.	40.8244	72.6663	?	64000	62780	58505	181.26	179.42	170.53	#VALUE!
60.	40.8742	72.8079	?	90376	90160	90152	155.30	153.80	147.24	#VALUE!
61.	40.7311	72.8771	?	64279	65553	71899	117.72	115.96	109.16	#VALUE!
62.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
63.	40.7669	72.7539	?	48691	48638	49943	152.05	149.25	137.33	#VALUE!
64.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
65.	40.8194	72.6507	?	62424	61065	56138	185.26	183.45	174.57	#VALUE!
66.	40.8038	72.6125	?	58771	57069	50474	196.09	194.45	185.97	#VALUE!

C01080903

000762

				Ground	Ground	Ground	Az (deg)	Az (deg)	Az (deg)	
	Witness Location		Witness	Dist (ft)	Dist (ft)	Dist (ft)	[1]	[2]	[3]	Closest Az
Witness name	Latitude	Longitude	Azimuth	t=0	t=15	t=42	t=0	t=15	t=42	(deg)
67.	40.7669	72.7539	?	48691	48638	49943	152.05	149.25	137.33	#VALUE!
68.	40.797	72.8313	?	69768	70165	72965	140.66	138.74	130.78	#VALUE!
69.	40.7431	73.0287	?	104563	106109	113305	109.06	108.08	104.21	#VALUE!
70.	40.7669	72.7539	?	48691	48638	49943	152.05	149.25	137.33	#VALUE!
71.	40.7535	73.1828	?	146398	148062	155645	104.93	104.27	101.63	#VALUE!
72.	40.8007	72.7406	?	58555	58127	57586	160.92	158.62	148.41	#VALUE!
73.	40.7624	72.7762	?	50512	50749	53210	144.98	142.30	131.24	#VALUE!
74.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
75.	40.7478	73.0101	?	100322	101808	108785	110.95	109.91	105.77	#VALUE!
76.	40.8045	72.7499	?	60735	60381	60129	159.05	156.83	147.01	#VALUE!
77.	40.7747	72.815	?	60651	61118	64328	139.09	136.90	127.93	#VALUE!
78.	40.7807	72.8542	?	69720	70403	74373	133.51	131.65	124.10	#VALUE!
79.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
80.	40.8282	72.7621	?	70007	69650	69234	159.00	157.07	148.56	#VALUE!
81.	40.796	72.6705	?	53631	52454	48566	180.26	178.04	167.17	#VALUE!
82.	40.785	72.7981	?	60729	60965	63226	144.75	142.53	133.23	#VALUE!
83.	40.623	73.2595	?	162975	165085	174423	86.49	86.11	84.63	#VALUE!
84.	40.7998	72.6454	?	55483	54054	48893	187.44	185.46	175.49	#VALUE!
85.	40.7822	72.7369	?	51862	51496	51375	159.55	156.95	145.44	#VALUE!
86.	40.8244	72.6664	?	63999	62781	58509	181.24	179.39	170.51	#VALUE!
87.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
88.	40.6167	72.7097	?	15813	18093	28148	42.08	44.32	50.20	#VALUE!
89.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
90.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
91.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
92.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
93.	40.7631	72.7542	?	47512	47497	48990	151.18	148.31	136.17	#VALUE!
94.	40.7134	73.0144	?	97703	99407	107240	103.82	102.86	99.13	#VALUE!
95.	40.7303	72.8725	?	63019	64283	70603	118.03	116.22	109.28	#VALUE!
96.	40.7661	72.7486	?	47762	47653	48744	153.44	150.59	138.37	#VALUE!
97.	41.0833	73.3956	?	254842	255694	259802	128.18	127.69	125.58	#VALUE!
98.	41.2201	73.0046	?	227565	227292	226597	156.11	155.51	152.91	#VALUE!
99.	41.254	72.4417	?	229485	227770	220602	196.07	195.66	193.76	#VALUE!

C01080903

000763

Witness name	Witness Location		Witness	Ground Dist (ft)	Ground Dist (ft)	Ground Dist (ft)	Az (deg) [1]	Az (deg) [2]	Az (deg) [3]	Closest Az
	Latitude	Longitude	Azimuth	t=0	t=15	t=42	t=0	t=15	t=42	(deg)
100.	41.2227	73.0566	?	234552	234406	234258	152.98	152.40	149.88	#VALUE!
101.	41.2227	73.0566	?	234552	234406	234258	152.98	152.40	149.88	#VALUE!
102.	41.2672	72.6526	?	225471	224226	219214	181.32	180.81	178.47	#VALUE!
103.	41.0678	73.3748	?	246857	247717	251869	127.99	127.47	125.31	#VALUE!
104.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
105.	40.7632	72.7723	?	50144	50331	52600	146.18	143.48	132.25	#VALUE!
106.	40.6167	72.7097	?	15813	18093	28148	42.08	44.32	50.20	#VALUE!
107.	40.8752	72.5084	?	93981	91952	83463	208.67	207.91	204.07	#VALUE!
108.	40.7807	72.8542	?	69720	70403	74373	133.51	131.65	124.10	#VALUE!
109.	40.7883	72.6687	?	50829	49634	45719	180.84	178.50	167.00	#VALUE!
110.	40.8383	72.4754	?	87741	85536	76154	218.16	217.58	214.53	#VALUE!
111.	40.7961	72.9032	?	83560	84378	88769	129.88	128.36	122.18	#VALUE!
112.	40.8009	72.7565	?	60200	59932	60061	156.98	154.73	144.86	#VALUE!
113.	40.8009	72.7565	?	60200	59932	60061	156.98	154.73	144.86	#VALUE!
114.	40.7835	72.6847	?	49211	48207	45253	175.71	173.18	161.03	#VALUE!
115.	40.7835	72.6847	?	49211	48207	45253	175.71	173.18	161.03	#VALUE!
116.	40.7835	72.6847	?	49211	48207	45253	175.71	173.18	161.03	#VALUE!
117.	40.6627	73.3696	?	193169	195179	204112	91.27	90.89	89.41	#VALUE!
118.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
119.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
120.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
121.	40.7961	72.9032	?	83560	84378	88769	129.88	128.36	122.18	#VALUE!
122.	40.6491	73.4577	?	217491	219532	228578	89.76	89.45	88.18	#VALUE!
123.	40.752	72.9336	?	81640	82919	89165	117.33	115.94	110.46	#VALUE!
124.	40.752	72.9336	?	81640	82919	89165	117.33	115.94	110.46	#VALUE!
125.	40.7632	72.7723	?	50144	50331	52600	146.18	143.48	132.25	#VALUE!
126.	40.7667	72.7465	?	47702	47562	48526	154.18	151.33	139.06	#VALUE!
127.	40.7687	72.7527	?	49119	49037	50205	152.75	149.98	138.12	#VALUE!
128.	40.8125	72.6876	?	59814	58802	55576	175.70	173.63	163.79	#VALUE!
129.	40.7424	72.8314	?	55841	56764	61853	127.57	125.35	116.66	#VALUE!
130.	40.7252	72.8868	?	65726	67093	73782	114.97	113.30	106.90	#VALUE!
131.	40.735	72.8602	?	60905	62067	68017	120.97	119.04	111.60	#VALUE!
132.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

C01080903

000764

Witness name	Witness Location		Witness	Ground Dist (ft)	Ground Dist (ft)	Ground Dist (ft)	Az (deg) [1]	Az (deg) [2]	Az (deg) [3]	Closest Az
	Latitude	Longitude	Azimuth	t=0	t=15	t=42	t=0	t=15	t=42	(deg)
133.	40.8196	72.5635	?	69003	67045	59028	205.62	204.49	198.58	#VALUE!
134.	40.767	72.7539	?	48723	48670	49969	152.07	149.28	137.36	#VALUE!
135.	40.7368	72.8542	?	59838	60952	66728	122.32	120.34	112.65	#VALUE!
136.	40.7894	72.664	?	51265	50018	45838	182.28	0.00	168.69	#VALUE!
137.	40.7355	72.86	?	60951	62107	68033	121.14	119.21	111.76	#VALUE!
138.	40.6784	73.6758	?	277963	279954	288783	91.89	91.63	90.55	#VALUE!
139.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
140.	40.767	73.003	?	101253	102605	109043	115.06	113.96	109.59	#VALUE!
141.	40.8196	72.5635	?	69003	67045	59028	205.62	204.49	198.58	#VALUE!
142.	40.7665	72.7552	?	48732	48698	50080	151.60	148.80	136.92	#VALUE!
143.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
144.	40.7626	72.7755	?	50461	50689	53113	145.20	142.53	131.43	#VALUE!
145.	40.8313	72.7548	?	70378	69944	69186	160.86	158.96	150.47	#VALUE!
146.	40.9581	72.6208	?	113587	112154	106492	187.08	186.12	181.59	#VALUE!
147.	40.737	72.8524	?	59458	60560	66298	122.64	120.63	112.87	#VALUE!
148.	40.7909	72.661	?	51851	50571	46221	183.18	180.94	169.83	#VALUE!
149.	40.7228	73.0744	?	114622	116333	124154	103.46	102.65	99.44	#VALUE!
150.	40.7823	72.6889	?	48876	47926	45233	174.31	171.74	159.46	#VALUE!
151.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
152.	40.7304	72.8746	?	63549	64820	71163	117.81	116.02	109.15	#VALUE!
153.	40.7399	73.0314	?	104896	106464	113749	108.32	107.36	103.55	#VALUE!
154.	40.7387	73.0312	?	104706	106282	113594	108.10	107.14	103.34	#VALUE!
155.	40.7851	72.6829	?	49759	48731	45648	176.33	173.84	161.86	#VALUE!
156.	40.8174	72.6137	?	63466	61807	55377	194.56	193.01	185.10	#VALUE!
157.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
158.	40.6419	72.2306	?	121954	119939	111230	271.34	271.94	274.68	#VALUE!
159.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
160.	40.7961	72.9032	?	83560	84378	88769	129.88	128.36	122.18	#VALUE!
161.	40.7664	72.754	?	48543	48496	49827	151.92	149.12	137.17	#VALUE!
162.	40.785	72.7977	?	60666	60898	63145	144.84	142.61	133.30	#VALUE!
163.	40.785	72.7977	?	60666	60898	63145	144.84	142.61	133.30	#VALUE!
164.	40.7434	72.8691	?	64603	65719	71456	122.17	120.32	113.15	#VALUE!
165.	40.7953	72.8073	?	65261	65491	67655	144.83	142.76	134.07	#VALUE!

C01080903

0007965

Witness name	Witness Location		Witness	Ground Dist (ft)	Ground Dist (ft)	Ground Dist (ft)	Az (deg) [1]	Az (deg) [2]	Az (deg) [3]	Closest Az
	Latitude	Longitude	Azimuth	t=0	t=15	t=42	t=0	t=15	t=42	(deg)
166.	40.8498	72.4762	?	90943	88766	79524	216.42	215.81	212.68	#VALUE!
167.	40.7979	72.6326	?	55371	53820	48050	191.17	189.29	179.64	#VALUE!
168.	40.8477	72.5031	?	86101	83990	75101	212.73	212.00	208.21	#VALUE!
169.	41.0615	73.4344	?	258633	259593	264157	125.31	124.83	122.81	#VALUE!
170.	40.8644	72.4114	?	106430	104164	94443	222.51	222.12	220.12	#VALUE!
171.	40.91	72.6439	?	95493	94147	88982	184.57	183.39	177.79	#VALUE!
172.	40.4868	73.8607	?	334616	336836	346579	79.44	79.30	78.73	#VALUE!
173.	40.7909	72.7532	?	56491	56251	56572	156.39	153.99	143.50	#VALUE!
174.	40.8361	72.4966	?	83599	81440	72311	215.33	214.65	211.06	#VALUE!
175.	40.8528	72.4114	?	103352	101067	91250	224.09	223.73	221.84	#VALUE!
176.	40.9168	72.6621	?	97703	96464	91785	181.51	180.31	174.71	#VALUE!
177.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
178.	40.7971	72.6547	?	54228	52887	48185	184.88	182.79	172.35	#VALUE!
179.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
180.	40.8255	72.6454	?	64784	63387	58238	186.37	184.66	176.22	#VALUE!
181.	40.7134	73.0144	?	97703	99407	107240	103.82	102.86	99.13	#VALUE!
182.	40.7671	72.9964	?	99621	100957	107341	115.53	114.41	109.94	#VALUE!
183.	40.9435	72.86205	?	119601	119437	119476	153.84	152.70	147.75	#VALUE!
184.	40.7909	72.6587	?	51890	50586	46113	183.88	181.66	170.61	#VALUE!
185.	40.8011	72.8671	?	77478	78071	81597	135.68	133.98	127.02	#VALUE!
186.	40.8555	72.5605	?	81310	79436	71777	202.16	201.12	195.87	#VALUE!
187.	40.7895	72.7893	?	60738	60860	62645	147.52	145.29	135.85	#VALUE!
188.	40.7431	72.0287	?	180930	178693	168942	259.27	259.52	260.63	#VALUE!
189.	40.7655	72.7743	?	51148	51334	53573	146.18	143.54	132.52	#VALUE!
190.	40.7905	72.6609	?	51707	50426	46073	183.22	180.97	169.84	#VALUE!
191.	40.7971	72.6547	?	54228	52887	48185	184.88	182.79	172.35	#VALUE!
192.	40.8664	72.4509	?	99975	97778	88423	217.59	217.07	214.39	#VALUE!
193.	40.7375	72.8512	?	59278	60369	66064	122.96	120.94	113.13	#VALUE!
194.	40.7361	72.8571	?	60382	61517	67372	121.71	119.75	112.18	#VALUE!
195.	40.8507	72.8598	?	90114	90337	92214	144.67	143.17	136.79	#VALUE!
196.	40.738	72.847	?	58409	59472	65072	123.74	121.67	113.68	#VALUE!
197.	40.7446	72.7978	?	49379	50023	54141	134.92	132.29	121.86	#VALUE!
198.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

C01080903

0007996

Witness name	Witness Location		Witness	Ground Dist (ft)	Ground Dist (ft)	Ground Dist (ft)	Az (deg) [1]	Az (deg) [2]	Az (deg) [3]	
	Latitude	Longitude	Azimuth	t=0	t=15	t=42	t=0	t=15	t=42	Closest Az (deg)
199.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
200.	40.6294	73.2283	?	154226	156324	165617	87.18	86.77	85.17	#VALUE!
201.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
202.	40.7699	73.0236	?	106863	108240	114760	114.27	113.24	109.13	#VALUE!
203.	40.807	72.6	?	60922	59139	52098	198.91	197.42	189.62	#VALUE!
204.	40.7469	73.2567	?	165675	167413	175272	102.26	101.71	99.47	#VALUE!
205.	40.7811	72.6944	?	48616	47737	45384	172.48	169.86	157.46	#VALUE!
206.	40.7647	72.7537	?	47958	47922	49318	151.66	148.82	136.75	#VALUE!
207.	40.785	72.7981	?	60729	60965	63226	144.75	142.53	133.23	#VALUE!
208.	41.2655	72.6569	?	224827	223593	218629	181.02	180.50	178.16	#VALUE!
209.	40.807	72.6	?	60922	59139	52098	198.91	197.42	189.62	#VALUE!
210.	40.7961	72.9032	?	83560	84378	88769	129.88	128.36	122.18	#VALUE!
211.	40.8438	72.6314	?	71910	70428	64782	188.85	187.36	180.02	#VALUE!
212.	40.802	72.6594	?	55916	54626	50140	183.40	181.33	171.15	#VALUE!
213.	40.8256	72.6455	?	64818	63421	58276	186.34	184.63	176.19	#VALUE!
214.	40.7358	72.8566	?	60207	61343	67202	121.69	119.73	112.14	#VALUE!
215.	40.7694	72.8482	?	65708	66457	70735	131.90	129.95	122.10	#VALUE!
216.	40.7954	72.6403	?	54098	52614	47200	189.15	187.16	177.04	#VALUE!
217.	40.777	72.7553	?	52143	52024	52958	153.57	150.96	139.73	#VALUE!
218.	40.6245	72.7105	?	14005	16354	26599	50.58	51.85	55.21	#VALUE!
219.	40.7352	72.8583	?	60493	61644	67556	121.28	119.33	111.82	#VALUE!
220.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
221.	40.6257	73.241	?	157807	159912	169235	86.74	86.35	84.81	#VALUE!
222.	40.8034	72.6619	?	56390	55125	50754	182.67	180.60	170.47	#VALUE!
223.	40.8438	72.6314	?	71910	70428	64782	188.85	187.36	180.02	#VALUE!
224.	40.7228	73.0744	?	114622	116333	124154	103.46	102.65	99.44	#VALUE!
225.	40.6394	73.3127	?	177431	179497	188658	88.67	88.30	86.82	#VALUE!
226.	40.6836	73.0048	?	93061	94930	103411	97.71	96.81	93.42	#VALUE!
227.	40.6884	73.2691	?	165903	167835	176471	94.79	94.31	92.43	#VALUE!
228.	40.8438	72.6314	?	71910	70428	64782	188.85	187.36	180.02	#VALUE!
229.	40.649	73.1591	?	134899	136945	146047	89.86	89.35	87.38	#VALUE!
230.	40.8323	72.433	?	93844	91553	81710	224.64	224.26	222.20	#VALUE!
231.	40.8323	72.433	?	93844	91553	81710	224.64	224.26	222.20	#VALUE!

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0007697

Witness name	Witness Location Latitude	Longitude	Witness Azimuth	Ground Dist (ft) t=0	Ground Dist (ft) t=15	Ground Dist (ft) t=42	Az (deg) [1] t=0	Az (deg) [2] t=15	Az (deg) [3] t=42	Closest Az (deg)
232.	40.7647	72.7532	?	47893	47851	49223	151.80	148.96	136.87	#VALUE!
233.	40.777	72.7553	?	52143	52024	52958	153.57	150.96	139.73	#VALUE!
	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
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	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

C01080903

000768

Witness name	Elevation (deg) t=0	Elevation (deg) t=15	Elevation (deg) t=42	Explos. Delta Time t=0 to 15	Explos. Delta Time t=0 to 42	Explos. Delta Time t=15 to 42	Time For Sound t=0	Time For Sound t=15	Time For Sound t=38.5
1.	13.64	16.96	6.96	14.62	33.24	18.61	53.95887	52.56915	46.23163
2.	15.78	19.06	6.85	16.05	41.08	25.03	47.44199	47.58641	47.55988
3.	13.02	15.50	5.18	16.95	46.03	29.08	57.48246	58.30468	62.8435
4.	6.56	7.88	2.66	17.56	48.62	31.06	113.2418	113.5591	122.3513
5.	5.84	7.02	2.36	17.87	49.77	31.90	126.8219	127.172	137.3724
6.	4.41	5.44	2.06	14.08	28.51	14.43	163.595	159.5402	153.2423
7.	15.77	19.04	6.85	16.05	41.08	25.02	47.47082	47.61358	47.58487
8.	12.99	15.45	5.15	17.01	46.32	29.32	57.61413	58.49144	63.27608
9.	12.49	14.85	4.94	17.07	46.68	29.61	59.90951	60.80382	65.98409
10.	11.98	14.48	5.10	16.19	42.29	26.10	62.23317	62.2209	63.8793
11.	11.98	14.48	5.10	16.19	42.29	26.10	62.23317	62.2209	63.8793
12.	13.96	17.33	7.06	14.73	33.83	19.10	52.81592	51.55388	45.66633
13.	12.88	15.66	5.70	15.77	39.94	24.18	57.8294	57.48667	57.0016
14.	15.00	18.52	7.39	15.03	35.43	20.40	49.39224	48.49433	43.80983
15.	14.71	17.90	6.61	15.72	39.44	23.72	50.69803	50.45046	49.21157
16.	13.02	15.50	5.18	16.95	46.03	29.08	57.48246	58.30468	62.8435
17.	13.02	15.50	5.18	16.95	46.03	29.08	57.48246	58.30468	62.8435
18.	4.97	6.05	2.13	16.47	42.11	25.64	149.2145	147.7523	152.4015
19.	3.09	3.80	1.41	14.55	28.55	14.00	234.1112	229.1439	225.1952
20.	10.07	12.54	5.08	14.19	31.15	16.96	72.39754	70.22439	62.9192
21.	14.51	17.59	6.39	15.88	40.36	24.48	51.45569	51.35413	50.92798
22.	9.86	11.98	4.28	15.92	40.93	25.01	75.38102	74.8439	75.90815
23.	3.41	4.12	1.42	18.33	49.18	30.85	216.7847	215.8218	228.5168
24.	12.96	15.95	6.16	15.11	36.25	21.14	57.14068	56.16484	52.54146
25.	14.06	16.79	5.70	16.71	44.74	28.02	53.26537	53.93887	57.22048
26.	17.40	20.83	7.29	16.38	42.55	26.17	43.20365	43.75626	44.73391
27.	4.06	4.90	1.67	18.22	49.82	31.60	181.9085	181.5222	193.6037
28.	11.71	14.53	5.81	14.60	33.41	18.82	62.74652	61.1579	55.37353
29.	12.95	15.41	5.14	17.00	46.28	29.28	57.77404	58.63886	63.3953
30.	9.20	11.46	4.64	14.02	30.11	16.09	78.95522	76.48002	68.54739
31.	6.87	8.24	2.77	17.57	48.77	31.20	108.122	108.5477	117.2803
32.	15.60	19.16	7.48	15.28	36.76	21.49	47.66644	47.04397	43.40184
33.	12.77	15.36	5.33	16.42	43.38	26.97	58.49837	58.78005	61.18352

C01080903

0007699

	Elevation (deg)	Elevation (deg)	Elevation (deg)	Explos. Delta Time	Explos. Delta Time	Explos. Delta Time	Time For Sound	Time For Sound	Time For Sound
Witness name	t=0	t=15	t=42	t=0 to 15	t=0 to 42	t=15 to 42	t=0	t=15	t=38.5
34.	4.97	6.04	2.13	16.47	42.12	25.65	149.2994	147.8372	152.4943
35.	9.14	11.38	4.58	14.06	30.41	16.34	79.52983	77.09048	69.43436
36.	15.65	18.91	6.82	16.02	40.94	24.92	47.82044	47.92746	47.8014
37.	13.02	15.50	5.18	16.95	46.03	29.08	57.48246	58.30468	62.8435
38.	5.21	6.45	2.48	13.91	28.35	14.44	137.9683	134.2481	126.9465
39.	16.17	19.62	7.22	15.84	39.88	24.04	46.24599	46.21036	45.123
40.	14.77	18.29	7.40	14.89	34.61	19.72	50.06816	49.0142	43.65944
41.	14.18	17.52	6.98	14.94	35.08	20.14	52.18088	51.14259	46.29656
42.	11.59	13.81	4.60	17.09	46.82	29.74	64.45293	65.27187	70.75989
43.	14.20	17.62	7.21	14.73	33.79	19.06	51.94946	50.70727	44.7491
44.	15.27	18.35	6.44	16.29	42.43	26.14	49.0672	49.41453	50.59215
45.	4.78	5.92	2.26	13.93	28.03	14.10	150.0173	146.0805	138.9116
46.	7.08	8.64	3.11	15.78	39.75	23.97	104.5701	103.316	104.4749
47.	9.60	11.49	3.86	17.10	46.89	29.79	77.69799	78.26156	84.33601
48.	14.47	17.94	7.31	14.79	34.12	19.32	51.04122	49.87812	44.15156
49.	8.91	11.11	4.50	13.93	29.61	15.67	81.26318	78.66277	70.39008
50.	8.91	11.11	4.50	13.93	29.61	15.67	81.26318	78.66277	70.39008
51.	15.80	19.39	7.53	15.33	37.05	21.72	47.09274	46.53664	43.10703
52.	12.40	15.35	6.09	14.78	34.39	19.61	59.43963	58.09313	52.99569
53.	6.66	8.00	2.70	17.48	48.24	30.77	111.617	111.883	120.3092
54.	5.77	6.95	2.35	17.63	48.59	30.96	128.6181	128.7022	138.002
55.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
56.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
57.	14.61	18.10	7.36	14.84	34.34	19.50	50.58234	49.46914	43.91047
58.	13.82	17.10	6.82	14.89	34.84	19.95	53.4569	52.34258	47.35208
59.	12.13	14.98	5.86	14.90	35.14	20.24	60.81976	59.5639	55.16007
60.	8.66	10.56	3.81	15.74	39.86	24.12	85.64698	84.7243	85.28471
61.	12.08	14.37	4.77	17.12	46.96	29.84	61.87331	62.77738	68.2678
62.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
63.	15.78	19.06	6.85	16.05	41.08	25.03	47.44199	47.58641	47.55988
64.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
65.	12.43	15.38	6.10	14.78	34.42	19.64	59.2974	57.95896	52.87825
66.	13.18	16.40	6.78	14.50	32.59	18.09	55.74791	54.20543	47.40188

C01080903

000770

	Elevation (deg)	Elevation (deg)	Elevation (deg)	Explos. Delta Time	Explos. Delta Time	Explos. Delta Time	Time For Sound	Time For Sound	Time For Sound
Witness name	t=0	t=15	t=42	t=0 to 15	t=0 to 42	t=15 to 42	t=0	t=15	t=38.5
67.	15.78	19.06	6.85	16.05	41.08	25.03	47.44199	47.58641	47.55988
68.	11.16	13.47	4.70	16.32	42.98	26.67	66.82429	66.8436	69.26976
69.	7.50	9.00	3.03	17.35	47.88	30.53	99.2274	99.61598	107.3079
70.	15.78	19.06	6.85	16.05	41.08	25.03	47.44199	47.58641	47.55988
71.	5.37	6.47	2.21	17.57	48.00	30.43	138.2927	138.12	147.2617
72.	13.22	16.12	5.95	15.63	39.19	23.55	56.26759	55.82701	54.63775
73.	15.24	18.32	6.43	16.29	42.41	26.12	49.15982	49.49998	50.66225
74.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
75.	7.81	9.37	3.16	17.29	47.66	30.37	95.28549	95.69337	103.0575
76.	12.77	15.55	5.70	15.69	39.53	23.84	58.2856	57.8561	57.04096
77.	12.78	15.37	5.33	16.42	43.38	26.97	58.45657	58.73944	61.14192
78.	11.16	13.42	4.61	16.58	44.30	27.72	66.84244	67.11318	70.62559
79.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
80.	11.12	13.56	4.95	15.64	39.40	23.76	66.77816	66.1342	65.57801
81.	14.39	17.76	7.04	15.01	35.46	20.45	51.46115	50.50646	45.94819
82.	12.77	15.41	5.42	16.21	42.32	26.11	58.47369	58.5545	60.07701
83.	4.83	5.81	1.97	18.03	49.83	31.79	153.3212	153.3134	164.4567
84.	13.93	17.27	7.00	14.77	34.11	19.33	52.98193	51.76068	46.12115
85.	14.86	18.07	6.66	15.74	39.56	23.82	50.21256	50.00068	48.84114
86.	12.13	14.98	5.86	14.90	35.14	20.24	60.81979	59.56471	55.16481
87.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
88.	41.03	42.88	12.03	18.55	48.81	30.26	19.34978	22.49046	26.80491
89.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
90.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
91.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
92.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
93.	16.15	19.48	6.98	16.10	41.26	25.17	46.3881	46.59873	46.67304
94.	8.02	9.59	3.20	17.49	48.64	31.16	92.78311	93.43123	101.51
95.	12.32	14.65	4.86	17.12	46.92	29.80	60.71466	61.63764	67.04651
96.	16.07	19.42	7.02	16.01	40.82	24.81	46.58853	46.71216	46.42864
97.	3.09	3.76	1.32	17.25	42.93	25.68	240.1577	237.6692	245.9649
98.	3.46	4.23	1.52	16.10	37.88	21.78	213.5462	210.4586	213.695
99.	3.43	4.22	1.56	14.78	30.70	15.92	212.3308	207.9951	205.1544

C01080903

0007700

		Recorder Down t=0			Apex t=15 sec			Right Wing Fail t=42			
	Witness name	Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)	
34.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
35.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
36.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
37.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
38.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
39.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
40.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
41.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
42.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
43.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
44.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
45.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
46.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
47.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
48.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
49.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
50.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
51.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
52.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
53.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
54.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
55.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
56.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
57.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
58.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
59.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
60.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
61.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
62.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
63.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
64.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
65.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
66.		40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453

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000772

Witness name	Elevation (deg) t=0	Elevation (deg) t=15	Elevation (deg) t=42	Explos. Delta Time t=0 to 15	Explos. Delta Time t=0 to 42	Explos. Delta Time t=15 to 42	Time For Sound t=0	Time For Sound t=15	Time For Sound t=38.5
100.	3.36	4.10	1.47	16.24	38.41	22.17	220.2502	217.1737	221.0691
101.	3.36	4.10	1.47	16.24	38.41	22.17	220.2502	217.1737	221.0691
102.	3.49	4.28	1.57	15.19	33.12	17.93	209.8656	205.9776	205.1009
103.	3.19	3.88	1.36	17.22	43.07	25.85	232.6582	230.2904	238.4606
104.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
105.	15.34	18.46	6.51	16.25	42.18	25.94	48.81513	49.12363	50.08475
106.	41.03	42.88	12.03	18.55	48.81	30.26	19.34978	22.49046	26.80491
107.	8.33	10.35	4.11	14.09	30.54	16.45	87.25879	84.69382	77.45183
108.	11.16	13.42	4.61	16.58	44.30	27.72	66.84244	67.11318	70.62559
109.	15.15	18.70	7.48	15.03	35.39	20.36	48.93203	48.04143	43.29868
110.	8.91	11.11	4.50	13.93	29.61	15.67	81.26318	78.66277	70.39008
111.	9.35	11.26	3.87	16.68	44.79	28.11	79.67986	79.79383	84.21926
112.	12.88	15.66	5.70	15.77	39.94	24.18	57.8294	57.48667	57.0016
113.	12.88	15.66	5.70	15.77	39.94	24.18	57.8294	57.48667	57.0016
114.	15.62	19.21	7.55	15.22	36.41	21.19	47.57248	46.89276	42.94244
115.	15.62	19.21	7.55	15.22	36.41	21.19	47.57248	46.89276	42.94244
116.	15.62	19.21	7.55	15.22	36.41	21.19	47.57248	46.89276	42.94244
117.	4.07	4.92	1.68	18.06	49.05	30.99	181.7346	181.1897	192.6363
118.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
119.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
120.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
121.	9.35	11.26	3.87	16.68	44.79	28.11	79.67986	79.79383	84.21926
122.	3.62	4.38	1.50	18.18	48.91	30.72	204.4426	203.5774	215.6478
123.	9.57	11.45	3.85	17.10	46.89	29.79	77.92675	78.48569	84.56764
124.	9.57	11.45	3.85	17.10	46.89	29.79	77.92675	78.48569	84.56764
125.	15.34	18.46	6.51	16.25	42.18	25.94	48.81513	49.12363	50.08475
126.	16.09	19.45	7.05	15.99	40.68	24.69	46.52641	46.62583	46.21936
127.	15.65	18.91	6.82	16.02	40.94	24.92	47.82044	47.92746	47.8014
128.	12.96	15.95	6.16	15.11	36.25	21.14	57.14068	56.16484	52.54146
129.	13.84	16.49	5.54	16.85	45.45	28.60	54.12082	54.91277	58.8238
130.	11.82	14.06	4.65	17.20	47.36	30.16	63.20152	64.15592	70.02927
131.	12.73	15.15	5.04	17.04	46.48	29.45	58.77205	59.65314	64.61918
132.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

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000773

	Elevation (deg)	Elevation (deg)	Elevation (deg)	Explos. Delta Time	Explos. Delta Time	Explos. Delta Time	Time For Sound	Time For Sound	Time For Sound
Witness name	t=0	t=15	t=42	t=0 to 15	t=0 to 42	t=15 to 42	t=0	t=15	t=38.5
133.	11.28	14.07	5.80	14.21	31.11	16.90	64.7233	62.71554	55.04569
134.	15.77	19.04	6.85	16.05	41.08	25.02	47.47082	47.61358	47.58487
135.	12.95	15.41	5.14	17.00	46.28	29.28	57.79188	58.65531	63.40862
136.	15.02	18.57	7.46	14.98	35.11	20.14	49.29632	47.20823	43.38548
137.	12.72	15.14	5.04	17.03	46.46	29.43	58.81482	59.68941	64.63489
138.	2.83	3.43	1.19	18.41	47.96	29.55	261.2018	259.4355	272.5546
139.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
140.	7.74	9.30	3.15	17.17	47.04	29.87	96.17417	96.44489	103.3372
141.	11.28	14.07	5.80	14.21	31.11	16.90	64.7233	62.71554	55.04569
142.	15.77	19.03	6.83	16.07	41.17	25.10	47.48393	47.6431	47.69143
143.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
144.	15.25	18.34	6.45	16.28	42.36	26.09	49.11168	49.4453	50.57019
145.	11.06	13.51	4.96	15.57	39.03	23.46	67.0834	66.36495	65.50591
146.	6.91	8.52	3.22	14.65	33.50	18.86	106.0632	103.6749	99.63993
147.	13.03	15.50	5.17	16.99	46.23	29.24	57.44273	58.30514	63.00378
148.	14.86	18.38	7.40	14.94	34.94	19.99	49.80479	48.81257	43.72539
149.	6.85	8.22	2.77	17.52	48.53	31.01	108.556	108.9267	117.4797
150.	15.72	19.32	7.56	15.27	36.69	21.42	47.29566	46.67146	42.94311
151.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
152.	12.22	14.53	4.82	17.12	46.95	29.83	61.20166	62.11936	67.57364
153.	7.47	8.97	3.02	17.37	47.98	30.61	99.53155	99.93501	107.7188
154.	7.49	8.98	3.02	17.38	48.01	30.63	99.35318	99.76589	107.5692
155.	15.46	19.02	7.49	15.19	36.28	21.09	48.05274	47.33623	43.30025
156.	12.23	15.21	6.18	14.51	32.80	18.29	60.01584	58.39393	51.96317
157.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
158.	6.44	7.97	3.09	14.13	30.15	16.02	110.3262	107.3636	100.6152
159.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
160.	9.35	11.26	3.87	16.68	44.79	28.11	79.67986	79.79383	84.21926
161.	15.83	19.11	6.87	16.06	41.11	25.05	47.30993	47.46334	47.45286
162.	12.78	15.42	5.43	16.21	42.31	26.10	58.41447	58.49379	60.00086
163.	12.78	15.42	5.43	16.21	42.31	26.10	58.41447	58.49379	60.00086
164.	12.02	14.34	4.80	16.98	46.27	29.29	62.17083	62.93013	67.86794
165	11.91	14.39	5.07	16.18	42.25	26.06	62.63052	62.60177	64.24367

C01080903

000774

Witness name	Elevation (deg) t=0	Elevation (deg) t=15	Elevation (deg) t=42	Explos. Delta Time t=0 to 15	Explos. Delta Time t=0 to 42	Explos. Delta Time t=15 to 42	Time For Sound t=0	Time For Sound t=15	Time For Sound t=38.5
166.	8.60	10.72	4.31	13.96	29.74	15.79	84.2208	81.58476	73.54408
167.	13.96	17.34	7.12	14.67	33.45	18.78	52.80159	51.47933	45.26902
168.	9.08	11.31	4.57	14.02	30.14	16.12	79.96466	77.47476	69.61097
169.	3.05	3.70	1.30	17.37	43.39	26.03	243.7571	241.312	250.1095
170.	7.37	9.16	3.64	13.88	29.13	15.26	98.01472	95.03488	86.99424
171.	8.20	10.12	3.86	14.71	34.15	19.44	89.5228	87.52053	83.43225
172.	2.35	2.86	0.99	18.88	48.31	29.43	313.3698	311.0505	326.1133
173.	13.69	16.63	6.05	15.82	40.12	24.30	54.45784	54.23089	53.7371
174.	9.35	11.66	4.74	13.98	29.89	15.91	77.61369	75.13131	66.95992
175.	7.58	9.44	3.76	13.86	29.05	15.19	95.16522	92.22182	84.00501
176.	8.02	9.88	3.74	14.81	34.67	19.87	91.66155	89.71211	86.14448
177.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
178.	14.24	17.62	7.10	14.86	34.59	19.72	51.90658	50.7949	45.51444
179.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
180.	11.99	14.84	5.88	14.73	34.19	19.46	61.41084	59.98261	54.80152
181.	8.02	9.59	3.20	17.49	48.64	31.16	92.78311	93.43123	101.51
182.	7.86	9.45	3.20	17.15	46.99	29.83	94.6538	94.93883	101.7313
183.	6.56	8.01	2.87	15.82	39.76	23.94	112.8318	111.4519	112.9061
184.	14.85	18.37	7.41	14.92	34.81	19.89	49.82632	48.81194	43.6137
185.	10.07	12.14	4.21	16.48	43.82	27.34	73.99705	74.03055	77.43308
186.	9.61	11.94	4.78	14.24	31.49	17.24	75.96952	73.77578	66.89999
187.	12.76	15.43	5.47	16.11	41.79	25.68	58.45032	58.43214	59.51244
188.	4.35	5.37	2.03	14.10	28.43	14.33	163.5816	159.5638	153.1717
189.	15.06	18.12	6.39	16.24	42.17	25.93	49.72462	50.00434	50.99824
190.	14.90	18.43	7.42	14.94	34.93	19.99	49.67477	48.68563	43.5873
191.	14.24	17.62	7.10	14.86	34.59	19.72	51.90658	50.7949	45.51444
192.	7.84	9.75	3.88	13.94	29.57	15.63	92.36042	89.54781	81.67046
193.	13.07	15.55	5.19	16.98	46.18	29.20	57.27736	58.13386	62.78415
194.	12.84	15.27	5.09	17.01	46.37	29.36	58.29157	59.16151	64.01332
195.	8.68	10.53	3.72	16.14	41.96	25.82	85.60395	85.07151	87.37834
196.	13.26	15.77	5.27	16.96	46.06	29.10	56.47977	57.33252	61.85056
197.	15.57	18.56	6.32	16.65	44.25	27.59	48.20717	48.92625	51.5632
198.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

C01080903

000775

	Witness name	Elevation (deg) t=0	Elevation (deg) t=15	Elevation (deg) t=42	Explos. Delta Time t=0 to 15	Explos. Delta Time t=0 to 42	Explos. Delta Time t=15 to 42	Time For Sound t=0	Time For Sound t=15	Time For Sound t=38.5
199.		#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
200.		5.10	6.13	2.07	17.99	49.86	31.87	145.1743	145.2852	156.1851
201.		#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
202.		7.34	8.82	2.99	17.20	47.10	29.90	101.4057	101.6038	108.7348
203.		12.73	15.86	6.57	14.42	32.13	17.71	57.61546	55.9487	48.83522
204.		4.75	5.73	1.96	17.70	48.12	30.42	156.3013	155.9058	165.7541
205.		15.80	19.39	7.53	15.33	37.05	21.72	47.09274	46.53664	43.10703
206.		16.01	19.32	6.94	16.07	41.17	25.09	46.785	46.96519	46.97717
207.		12.77	15.41	5.42	16.21	42.32	26.11	58.47369	58.5545	60.07701
208.		3.50	4.30	1.57	15.20	33.18	17.98	209.2925	205.4223	204.5781
209.		12.73	15.86	6.57	14.42	32.13	17.71	57.61546	55.9487	48.83522
210.		9.35	11.26	3.87	16.68	44.79	28.11	79.67986	79.79383	84.21926
211.		10.83	13.42	5.29	14.62	33.67	19.05	67.82078	66.15905	60.81297
212.		13.82	17.10	6.82	14.89	34.84	19.95	53.4569	52.34258	47.35208
213.		11.99	14.84	5.88	14.73	34.19	19.46	61.44161	60.0134	54.83758
214.		12.87	15.32	5.10	17.02	46.37	29.36	58.13101	59.00564	63.85369
215.		11.83	14.19	4.85	16.65	44.63	27.98	63.15476	63.56875	67.19742
216.		14.27	17.71	7.24	14.74	33.82	19.08	51.70223	50.47155	44.52366
217.		14.78	17.90	6.46	15.96	40.73	24.78	50.54613	50.53699	50.37485
218.		44.50	45.77	12.71	18.62	48.66	30.04	18.18698	21.42183	25.44709
219.		12.81	15.24	5.08	17.03	46.44	29.41	58.394	59.27479	64.18579
220.		#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
221.		4.98	6.00	2.03	18.01	49.86	31.85	148.5032	148.5681	159.5785
222.		13.71	16.95	6.74	14.91	34.97	20.06	53.89873	52.79366	47.93494
223.		10.83	13.42	5.29	14.62	33.67	19.05	67.82078	66.15905	60.81297
224.		6.85	8.22	2.77	17.52	48.53	31.01	108.556	108.9267	117.4797
225.		4.43	5.35	1.82	18.05	49.48	31.43	166.9131	166.6505	177.9583
226.		8.41	10.04	3.32	17.63	49.40	31.77	88.38634	89.26467	97.79958
227.		4.74	5.72	1.95	17.88	49.00	31.12	156.3302	156.1113	166.6791
228.		10.83	13.42	5.29	14.62	33.67	19.05	67.82078	66.15905	60.81297
229.		5.82	6.99	2.35	17.88	49.82	31.94	127.2126	127.5687	137.8285
230.		8.34	10.40	4.20	13.85	29.08	15.23	86.55074	83.76755	75.25108
231.		8.34	10.40	4.20	13.85	29.08	15.23	86.55074	83.76755	75.25108

C01080903

0007976

Witness name	Elevation (deg) t=0	Elevation (deg) t=15	Elevation (deg) t=42	Explos. Delta Time t=0 to 15	Explos. Delta Time t=0 to 42	Explos. Delta Time t=15 to 42	Time For Sound t=0	Time For Sound t=15	Time For Sound t=38.5
232.	16.03	19.35	6.95	16.07	41.14	25.07	46.7245	46.90156	46.88777
233.	14.78	17.90	6.46	15.96	40.73	24.78	50.54613	50.53699	50.37485
	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

TWA800 @ t=-12			USAIR FLT217 @ t=-12			USAIR FLT217 @ t=0			Distance From Witnes		
Latitude	Longitude	Altitude	Latitude	Longitude	Altitude	Latitude	Longitude	Altitude	TWA800 t=-12	TWA800 t=0	FLT217 t=-12
40.6397	**72.7144**	**13800**	**40.5953**	**72.7183**	**21695**	**40.6183**	**72.7097**	**21700**	63439	56687	78665
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	47640	48691	63504
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	52365	59503	64720
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	108935	119657	114374
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	122663	134462	124409
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	188971	178506	201090
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	47675	48723	63540
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	52162	59644	64172
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	54194	62143	65611
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	61797	64827	76827
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	61797	64827	76827
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	61537	55335	76985
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	59907	60200	75851
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	56074	51337	71949
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	52974	52407	69083
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	52365	59503	64720
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	52365	59503	64720
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	153391	158158	166711
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	263754	254694	277568
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	86001	77465	100223
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	52701	53172	68651
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	77229	79184	92578
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	218821	230939	218273
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	63430	59814	79528
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	49427	54923	63257
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	41421	43901	56968
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	181553	193774	180337
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	72718	66377	88149
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	52383	59819	64434
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	94641	85001	107870
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	103386	114185	108704
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	52769	49282	68858
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	56570	60697	71114

C01080903

0007878

TWA800 @ t=-12			USAIR FLT217 @ t=-12			USAIR FLT217 @ t=0			Distance From Witnes		
Latitude	Longitude	Altitude	Latitude	Longitude	Altitude	Latitude	Longitude	Altitude	TWA800 t=-12	TWA800 t=0	FLT217 t=-12
40.6397	**72.7144**	**13800**	**40.5953**	**72.7183**	**21695**	**40.6183**	**72.7097**	**21700**	153473	158247	166786
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	94813	85533	108406
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	48205	49119	64095
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	52365	59503	64720
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	162124	150855	172787
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	47766	47445	63868
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	57707	52182	73375
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	59450	54473	75280
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	58878	67078	69838
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	60638	54377	76060
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	47755	50408	63136
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	176201	164504	185723
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	109335	110740	124746
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	72878	81393	83051
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	59298	53325	74822
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	97981	87741	110494
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	97981	87741	110494
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	51844	48616	67961
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	68018	62584	83751
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	107516	117873	113844
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	125262	136127	130143
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	58557	52787	74149
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	61088	55916	76873
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	68633	64000	84572
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	89303	90376	104905
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	55976	64279	66898
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	47640	48691	63504
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	67834	62424	83573
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	66118	58771	81061

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000079

TWA800 @ t=-12			USAIR FLT217 @ t=-12			USAIR FLT217 @ t=0			Distance From Witnes		
Latitude	Longitude	Altitude	Latitude	Longitude	Altitude	Latitude	Longitude	Altitude	TWA800 t=-12	TWA800 t=0	FLT217 t=-12
40.6397	**72.7144**	**13800**	**40.5953**	**72.7183**	**21695**	**40.6183**	**72.7097**	**21700**	47640	48691	63504
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	65816	69768	80318
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	94704	104563	102256
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	47640	48691	63504
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	135950	146398	141770
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	59139	58555	75230
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	47882	50512	63269
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	90739	100322	98873
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	60875	60735	76895
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	56525	60651	71069
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	64302	69720	77858
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	69971	70007	85923
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	58258	53631	74167
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	57800	60729	72925
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	150935	162975	151200
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	61401	55483	76953
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	52321	51862	68420
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	68627	63999	84567
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	8485	15813	7909
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	46312	47512	62155
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	87188	97703	93478
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	54783	63019	65831
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	47040	47762	62981
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	247845	254842	258743
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	226184	227565	241403
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	236203	229485	251609

C01080903

0007080

TWA800 @ t=-12			USAIR FLT217 @ t=-12			USAIR FLT217 @ t=0			Distance From Witnes		
Latitude	Longitude	Altitude	Latitude	Longitude	Altitude	Latitude	Longitude	Altitude	TWA800 t=-12	TWA800 t=0	FLT217 t=-12
40.6397	**72.7144**	**13800**	**40.5953**	**72.7183**	**21695**	**40.6183**	**72.7097**	**21700**	232498	234552	247394
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	232498	234552	247394
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	229393	225471	245539
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	239829	246857	250708
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	47782	50144	63268
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	8485	15813	7909
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	102990	93981	116835
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	64302	69720	77858
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	55626	50829	71485
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	97981	87741	110494
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	77281	83560	89900
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	59907	60200	75851
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	59907	60200	75851
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	53062	49211	69100
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	53062	49211	69100
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	53062	49211	69100
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	181414	193169	182938
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	77281	83560	89900
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	205637	217491	206609
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	73123	81640	83287
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	73123	81640	83287
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	47782	50144	63268
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	47141	47702	63113
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	48205	49119	64095
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	63430	59814	79528
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	49475	55841	62630
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	56949	65726	67199
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	53212	60905	64956
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!

C01080903

000781

TWA800 @ t=-12			USAIR FLT217 @ t=-12			USAIR FLT217 @ t=0			Distance From Witnes		
Latitude	Longitude	Altitude	Latitude	Longitude	Altitude	Latitude	Longitude	Altitude	TWA800 t=-12	TWA800 t=0	FLT217 t=-12
40.6397	**72.7144**	**13800**	**40.5953**	**72.7183**	**21695**	**40.6183**	**72.7097**	**21700**	77712	69003	91791
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	47675	48723	63540
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	52408	59838	64463
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	56324	51265	72119
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	53289	60951	65065
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	266253	277963	267687
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	92280	101253	101411
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	77712	69003	91791
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	47582	48732	63424
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	47881	50461	63287
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	70736	70378	86757
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	118915	113587	134763
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	52091	59458	64225
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	57062	51851	72820
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	104035	114622	109876
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	52462	48876	68536
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	55269	63549	66245
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	94937	104896	102287
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	94719	104706	102015
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	53717	49759	69739
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	70503	63466	85618
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	133836	121954	134952
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	77281	83560	89900
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	47469	48543	63330
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	57756	60666	72890
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	57756	60666	72890
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	57077	64603	68883
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	62263	65261	77301

C01080903

000782

	Recorder Down t=0			Apex t=15 sec			Right Wing Fail t=42			
Witness name	Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)	
67.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
68.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
69.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
70.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
71.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
72.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
73.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
74.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
75.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
76.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
77.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
78.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
79.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
80.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
81.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
82.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
83.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
84.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
85.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
86.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
87.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
88.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
89.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
90.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
91.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
92.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
93.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
94.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
95.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
96.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
97.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
98.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
99.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453

C01080903

000783

TWA800 @ t=-12			USAIR FLT217 @ t=-12			USAIR FLT217 @ t=0			Distance From Witnes		
Latitude	Longitude	Altitude	Latitude	Longitude	Altitude	Latitude	Longitude	Altitude	TWA800 t=-12	TWA800 t=0	FLT217 t=-12
40.6397	**72.7144**	**13800**	**40.5953**	**72.7183**	**21695**	**40.6183**	**72.7097**	**21700**	100971	90943	113752
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	61944	55371	77243
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	95687	86101	108973
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	251129	258633	261404
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	117101	106430	128962
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	100444	95493	116367
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	322324	334616	320027
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	56154	56491	72110
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	93520	83599	106435
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	114188	103352	125779
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	102046	97703	118093
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	59706	54228	75396
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	70366	64784	86061
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	87188	97703	93478
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	90726	99621	100004
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	118013	119601	133325
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	57230	51890	72951
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	72403	77478	86083
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	89420	81310	103952
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	58401	60738	73763
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	193253	180930	197112
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	48758	51148	64220
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	56929	51707	72682
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	59706	54228	75396
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	110117	99975	122747
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	51974	59278	64175
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	52831	60382	64745
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	86774	90114	101405
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	51262	58409	63646
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	44653	49379	59113
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!

C01080903

000784

TWA800 @ t=-12			USAIR FLT217 @ t=-12			USAIR FLT217 @ t=0			Distance From Witnes		
Latitude	Longitude	Altitude	Latitude	Longitude	Altitude	Latitude	Longitude	Altitude	TWA800 t=-12	TWA800 t=0	FLT217 t=-12
40.6397	**72.7144**	**13800**	**40.5953**	**72.7183**	**21695**	**40.6183**	**72.7097**	**21700**	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	142223	154226	142763
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	97750	106863	106576
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	68694	60922	83403
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	154909	165675	159809
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	51844	48616	67961
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	46847	47958	62705
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	57800	60729	72925
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	228690	224827	244841
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	68694	60922	83403
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	77281	83560	89900
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	77858	71910	93451
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	61088	55916	76873
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	70394	64818	86090
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	52656	60207	64574
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	60026	65708	73462
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	60342	54098	75769
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	51314	52143	67199
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	5645	14005	10700
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	52863	60493	64689
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	145781	157807	146161
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	61416	56390	77240
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	77858	71910	93451
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	104035	114622	109876
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	165511	177431	166345
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	81888	93061	86545
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	154417	165903	157153
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	77858	71910	93451
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	123058	134899	124600
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	104749	93844	116239
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	104749	93844	116239

C01080903

0007785

TWA800 @ t=-12			USAIR FLT217 @ t=-12			USAIR FLT217 @ t=0			Distance From Witnes		
Latitude	Longitude	Altitude	Latitude	Longitude	Altitude	Latitude	Longitude	Altitude	TWA800 t=-12	TWA800 t=0	FLT217 t=-12
40.6397	**72.7144**	**13800**	**40.5953**	**72.7183**	**21695**	**40.6183**	**72.7097**	**21700**	46815	47893	62681
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	51314	52143	67199
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!

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0007786

FLT217			AT TIME= -12 SEC				AT TIME= 0 SEC			
t=0		Witness Name	Azimuth TWA800	Elevation TWA800	Azimuth USA217	Elevation USA217	Azimuth TWA800	Elevation TWA800	Azimuth USA217	Elevation USA217
70294		1.	202.24	12.27	197.79	15.42	192.34	13.64	198.86	17.16
55534		2.	166.74	16.15	170.09	18.86	152.05	15.78	167.28	21.34
58932		3.	134.25	14.76	144.55	18.53	123.87	13.02	138.79	20.21
112522		4.	105.43	7.22	113.26	10.74	102.34	6.56	109.07	10.92
124536		5.	92.16	6.42	99.62	9.89	90.51	5.84	95.72	9.88
193878		6.	223.43	4.18	220.27	6.16	221.38	4.41	221.57	6.39
55570		7.	166.75	16.14	170.09	18.85	152.07	15.77	167.28	21.33
58575		8.	132.15	14.82	142.91	18.68	122.03	12.99	136.95	20.33
60348		9.	128.97	14.29	140.02	18.30	119.62	12.49	133.95	19.78
69468		10.	155.51	12.59	160.51	15.77	144.65	11.98	157.20	17.35
69468		11.	155.51	12.59	160.51	15.77	144.65	11.98	157.20	17.35
68564		12.	199.54	12.64	195.52	15.74	189.03	13.96	196.34	17.56
67813		13.	168.79	12.97	171.16	15.96	156.98	12.88	168.99	17.74
63466		14.	192.80	13.83	189.95	16.78	180.58	15.00	190.10	18.88
60873		15.	173.58	14.60	175.08	17.43	160.13	14.71	173.19	19.62
58932		16.	134.25	14.76	144.55	18.53	123.87	13.02	138.79	20.21
58932		17.	134.25	14.76	144.55	18.53	123.87	13.02	138.79	20.21
160488		18.	143.48	5.14	146.77	7.41	139.28	4.97	144.75	7.70
269703		19.	212.65	3.00	210.87	4.47	210.79	3.09	211.53	4.60
92162		20.	211.10	9.12	206.33	12.21	204.83	10.07	207.91	13.25
60607		21.	168.77	14.67	171.40	17.54	155.37	14.51	169.00	19.70
85010		22.	159.60	10.13	163.09	13.19	150.65	9.86	160.61	14.32
219707		23.	85.42	3.61	89.67	5.68	84.80	3.41	87.48	5.64
71060		24.	186.71	12.27	185.35	15.26	175.70	12.96	184.94	16.98
56620		25.	144.05	15.60	152.67	18.93	131.85	14.06	147.61	20.97
49238		26.	160.94	18.43	166.25	20.85	144.61	17.40	162.47	23.78
182084		27.	82.72	4.35	87.83	6.86	82.15	4.06	85.20	6.80
79736		28.	199.47	10.75	195.97	13.83	190.71	11.71	196.72	15.22
58815		29.	132.41	14.76	143.09	18.61	122.30	12.95	137.17	20.25
100165		30.	218.06	8.30	212.77	11.37	213.11	9.20	214.73	12.22
106903		31.	104.76	7.60	113.03	11.29	101.59	6.87	108.62	11.47
60388		32.	187.23	14.66	185.54	17.49	173.87	15.60	185.07	19.77
64061		33.	150.50	13.71	156.92	16.97	139.09	12.77	152.92	18.71

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0007787

			AT TIME= -12 SEC				AT TIME= 0 SEC			
FLT217			Azimuth	Elevation	Azimuth	Elevation	Azimuth	Elevation	Azimuth	Elevation
t=0		Witness Name	TWA800	TWA800	USA217	USA217	TWA800	TWA800	USA217	USA217
160567		34.	143.44	5.14	146.73	7.41	139.24	4.97	144.71	7.70
100569		35.	215.58	8.28	210.61	11.32	210.38	9.14	212.39	12.18
56103		36.	167.30	15.98	170.48	18.70	152.75	15.65	167.75	21.15
58932		37.	134.25	14.76	144.55	18.53	123.87	13.02	138.79	20.21
166176		38.	231.21	4.87	227.04	7.16	229.35	5.21	228.84	7.44
55668		39.	173.18	16.11	174.90	18.76	158.27	16.17	172.80	21.30
64913		40.	196.49	13.45	192.91	16.47	184.92	14.77	193.43	18.48
66800		41.	193.62	13.07	190.72	16.08	182.21	14.18	190.96	18.00
64846		42.	126.95	13.19	137.61	17.26	118.51	11.59	131.76	18.50
67644		43.	199.92	12.82	195.78	15.92	189.28	14.20	196.64	17.79
55528		44.	158.99	16.12	164.25	18.96	144.85	15.27	160.62	21.35
179621		45.	236.41	4.48	232.27	6.66	235.07	4.78	234.12	6.89
117141		46.	160.86	7.19	163.29	9.87	154.46	7.08	161.50	10.49
78543		47.	124.00	10.72	133.28	14.64	117.33	9.60	128.18	15.44
66386		48.	198.58	13.10	194.64	16.17	187.54	14.47	195.37	18.10
103065		49.	222.44	8.02	216.78	11.11	218.16	8.91	218.98	11.89
103065		50.	222.44	8.02	216.78	11.11	218.16	8.91	218.98	11.89
59501		51.	186.13	14.91	184.67	17.70	172.48	15.80	184.08	20.04
75282		52.	195.16	11.47	192.27	14.52	185.40	12.40	192.66	16.08
111514		53.	108.86	7.31	116.58	10.79	105.42	6.66	112.43	11.01
128623		54.	103.77	6.29	110.70	9.46	101.18	5.77	107.00	9.58
#VALUE!		55.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
#VALUE!		56.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
65700		57.	197.63	13.26	193.85	16.31	186.34	14.61	194.49	18.28
68397		58.	194.42	12.73	191.42	15.76	183.40	13.82	191.74	17.60
76087		59.	191.18	11.37	189.06	14.39	181.26	12.13	189.08	15.92
97153		60.	163.16	8.78	165.72	11.68	155.30	8.66	163.76	12.59
61914		61.	126.48	13.85	137.68	17.97	117.72	12.08	131.57	19.31
#VALUE!		62.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
55534		63.	166.74	16.15	170.09	18.86	152.05	15.78	167.28	21.34
#VALUE!		64.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
75104		65.	195.06	11.50	192.18	14.55	185.26	12.43	192.56	16.12
72765		66.	205.24	11.79	200.36	14.98	196.09	13.18	201.69	16.61

C01080903

0007788

FLT217 t=0	Witness Name	AT TIME= -12 SEC Azimuth TWA800	Elevation TWA800	Azimuth USA217	Elevation USA217	AT TIME= 0 SEC Azimuth TWA800	Elevation TWA800	Azimuth USA217	Elevation USA217
55534	67.	166.74	16.15	170.09	18.86	152.05	15.78	167.28	21.34
73303	68.	150.57	11.84	156.24	15.12	140.66	11.16	152.67	16.49
99237	69.	113.35	8.29	121.70	11.98	109.06	7.50	117.18	12.33
55534	70.	166.74	16.15	170.09	18.86	152.05	15.78	167.28	21.34
139765	71.	107.62	5.80	113.85	8.70	104.93	5.37	110.50	8.83
67042	72.	172.96	13.13	174.47	16.09	160.92	13.22	172.67	17.94
55656	73.	159.08	16.08	164.31	18.93	144.98	15.24	160.69	21.30
#VALUE!	74.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
95528	75.	115.64	8.65	124.12	12.38	110.95	7.81	119.52	12.80
68784	76.	170.72	12.77	172.66	15.76	159.05	12.77	170.69	17.51
64016	77.	150.51	13.72	156.93	16.98	139.09	12.78	152.92	18.73
71416	78.	143.03	12.11	150.19	15.57	133.51	11.16	145.95	16.90
#VALUE!	79.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
77879	80.	169.13	11.16	171.16	14.17	159.00	11.12	169.27	15.57
65682	81.	192.03	13.33	189.43	16.31	180.26	14.39	189.51	18.28
65499	82.	156.38	13.43	161.47	16.57	144.75	12.77	158.07	18.33
152147	83.	87.51	5.22	93.65	8.17	86.49	4.83	90.47	8.12
68512	84.	198.11	12.67	194.37	15.74	187.44	13.93	195.05	17.57
60222	85.	173.17	14.78	174.78	17.59	159.55	14.86	172.82	19.82
76082	86.	191.16	11.37	189.04	14.39	181.24	12.13	189.06	15.92
#VALUE!	87.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
583	88.	351.19	58.41	0.00	69.97	42.08	41.03	0.00	88.46
#VALUE!	89.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
#VALUE!	90.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
#VALUE!	91.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
#VALUE!	92.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
54203	93.	166.25	16.59	169.79	19.24	151.18	16.15	166.87	21.82
91112	94.	107.85	8.99	117.33	13.07	103.82	8.02	112.27	13.40
60773	95.	127.03	14.14	138.33	18.24	118.03	12.32	132.16	19.65
54944	96.	168.40	16.35	171.35	19.01	153.44	16.07	168.70	21.55
253991	97.	130.51	3.19	133.21	4.79	128.18	3.09	131.64	4.88
233949	98.	159.21	3.49	160.56	5.14	156.11	3.46	159.58	5.30
243220	99.	198.63	3.34	197.46	4.93	196.07	3.43	197.75	5.10

C01080903

0007689

			AT TIME= -12 SEC				AT TIME= 0 SEC			
FLT217			Azimuth	Elevation	Azimuth	Elevation	Azimuth	Elevation	Azimuth	Elevation
t=0		Witness Name	TWA800	TWA800	USA217	USA217	TWA800	TWA800	USA217	USA217
240169		100.	155.97	3.40	157.49	5.01	152.98	3.36	156.44	5.16
240169		101.	155.97	3.40	157.49	5.01	152.98	3.36	156.44	5.16
237085		102.	184.27	3.44	184.00	5.05	181.32	3.49	183.82	5.23
245965		103.	130.38	3.29	133.18	4.95	127.99	3.19	131.56	5.04
#VALUE!		104.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
55587		105.	160.41	16.11	165.33	18.93	146.18	15.34	161.84	21.32
583		106.	351.19	58.41	0.00	69.97	42.08	41.03	0.00	88.46
108915		107.	213.60	7.63	209.21	10.52	208.67	8.33	210.76	11.27
71416		108.	143.03	12.11	150.19	15.57	133.51	11.16	145.95	16.90
63003		109.	193.14	13.93	190.19	16.88	180.84	15.15	190.37	19.01
103065		110.	222.44	8.02	216.78	11.11	218.16	8.91	218.98	11.89
84030		111.	137.48	10.12	144.45	13.57	129.88	9.35	140.41	14.48
67813		112.	168.79	12.97	171.16	15.96	156.98	12.88	168.99	17.74
67813		113.	168.79	12.97	171.16	15.96	156.98	12.88	168.99	17.74
60620		114.	188.91	14.58	186.83	17.43	175.71	15.62	186.55	19.70
60620		115.	188.91	14.58	186.83	17.43	175.71	15.62	186.55	19.70
60620		116.	188.91	14.58	186.83	17.43	175.71	15.62	186.55	19.70
183265		117.	92.44	4.35	97.51	6.76	91.27	4.07	94.85	6.75
#VALUE!		118.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
#VALUE!		119.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
#VALUE!		120.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
84030		121.	137.48	10.12	144.45	13.57	129.88	9.35	140.41	14.48
207246		122.	90.71	3.84	95.21	5.99	89.76	3.62	92.86	5.98
78784		123.	123.98	10.69	133.23	14.60	117.33	9.57	128.15	15.40
78784		124.	123.98	10.69	133.23	14.60	117.33	9.57	128.15	15.40
55587		125.	160.41	16.11	165.33	18.93	146.18	15.34	161.84	21.32
55049		126.	169.14	16.32	171.91	18.97	154.18	16.09	169.34	21.51
56103		127.	167.30	15.98	170.48	18.70	152.75	15.65	167.75	21.15
71060		128.	186.71	12.27	185.35	15.26	175.70	12.96	184.94	16.98
56382		129.	139.14	15.59	148.86	19.11	127.57	13.84	143.32	21.05
62584		130.	123.13	13.62	134.75	17.89	114.97	11.82	128.46	19.12
59510		131.	130.71	14.54	141.59	18.47	120.97	12.73	135.59	20.03
#VALUE!		132.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

C01080903

0007090

				AT TIME= -12 SEC				AT TIME= 0 SEC			
FLT217			Azimuth	Elevation	Azimuth	Elevation	Azimuth	Elevation	Azimuth	Elevation
t=0		Witness Name	TWA800	TWA800	USA217	USA217	TWA800	TWA800	USA217	USA217
83770		133.	212.49	10.07	207.07	13.30	205.62	11.28	208.88	14.52
55570		134.	166.75	16.14	170.09	18.85	152.07	15.77	167.28	21.33
58842		135.	132.44	14.75	143.11	18.60	122.32	12.95	137.19	20.24
63642		136.	194.33	13.77	191.15	16.74	182.28	15.02	191.46	18.83
59602		137.	130.90	14.52	141.72	18.44	121.14	12.72	135.75	20.01
268118		138.	92.72	2.97	96.18	4.63	91.89	2.83	94.37	4.63
#VALUE!		139.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
97527		140.	120.10	8.51	128.02	12.08	115.06	7.74	123.67	12.54
83770		141.	212.49	10.07	207.07	13.30	205.62	11.28	208.88	14.52
55472		142.	166.28	16.17	169.74	18.88	151.60	15.77	166.88	21.36
#VALUE!		143.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
55662		144.	159.33	16.08	164.50	18.92	145.20	15.25	160.91	21.30
78645		145.	170.91	11.04	172.59	14.04	160.86	11.06	170.87	15.43
126284		146.	192.58	6.62	191.09	9.15	187.08	6.91	191.23	9.75
58559		147.	132.87	14.84	143.50	18.66	122.64	13.03	137.60	20.33
64346		148.	195.00	13.60	191.71	16.59	183.18	14.86	192.09	18.64
107798		149.	106.81	7.56	114.91	11.17	103.46	6.85	110.58	11.38
60064		150.	187.73	14.74	185.91	17.57	174.31	15.72	185.50	19.86
#VALUE!		151.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
61228		152.	126.69	14.02	137.98	18.13	117.81	12.22	131.82	19.51
99377		153.	112.53	8.27	120.92	11.97	108.32	7.47	116.39	12.32
99133		154.	112.29	8.29	120.72	12.01	108.10	7.49	116.18	12.35
61258		155.	189.34	14.41	187.18	17.28	176.33	15.46	186.95	19.51
77279		156.	203.27	11.07	199.00	14.22	194.56	12.23	200.11	15.68
#VALUE!		157.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
132834		158.	269.81	5.89	262.93	9.13	271.34	6.44	266.44	9.28
#VALUE!		159.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
84030		160.	137.48	10.12	144.45	13.57	129.88	9.35	140.41	14.48
55363		161.	166.66	16.21	170.03	18.91	151.92	15.83	167.21	21.40
65458		162.	156.49	13.44	161.56	16.58	144.84	12.78	158.16	18.34
65458		163.	156.49	13.44	161.56	16.58	144.84	12.78	158.16	18.34
63419		164.	131.43	13.59	141.56	17.48	122.17	12.02	135.93	18.89
69938		165.	155.62	12.50	160.57	15.68	144.83	11.91	157.28	17.24

C01080903

0007791

s				AT TIME= -12 SEC					AT TIME= 0 SEC		
FLT217			Azimuth	Elevation	Azimuth	Elevation	Azimuth	Elevation	Azimuth	Elevation
t=0		Witness Name	TWA800	TWA800	USA217	USA217	TWA800	TWA800	USA217	USA217
106223		166.	220.74	7.78	215.43	10.80	216.42	8.60	217.47	11.55
68855		167.	201.43	12.56	197.05	15.69	191.17	13.96	198.05	17.49
101249		168.	217.65	8.21	212.46	11.26	212.73	9.08	214.38	12.10
257012		169.	127.52	3.15	130.32	4.74	125.31	3.05	128.71	4.83
121812		170.	225.71	6.72	220.57	9.55	222.51	7.37	222.66	10.10
107883		171.	191.20	7.82	189.65	10.56	184.57	8.20	189.72	11.37
322404		172.	79.67	2.45	82.53	3.88	79.44	2.35	81.07	3.85
64061		173.	168.98	13.81	171.43	16.74	156.39	13.69	169.17	18.71
98847		174.	220.11	8.39	214.50	11.52	215.33	9.35	216.63	12.38
118737		175.	227.23	6.89	221.82	9.79	224.09	7.58	224.04	10.36
109612		176.	188.15	7.70	187.04	10.41	181.51	8.02	186.90	11.20
#VALUE!		177.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
66932		178.	196.06	13.01	192.66	16.05	184.88	14.24	193.14	17.96
#VALUE!		179.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
77598		180.	195.74	11.10	192.82	14.15	186.37	11.99	193.26	15.62
91112		181.	107.85	8.99	117.33	13.07	103.82	8.02	112.27	13.40
96036		182.	120.70	8.65	128.68	12.24	115.53	7.86	124.30	12.73
125793		183.	159.75	6.67	162.15	9.24	153.84	6.56	160.42	9.79
64482		184.	195.62	13.56	192.20	16.56	183.88	14.85	192.64	18.60
79581		185.	144.31	10.79	150.59	14.15	135.68	10.07	146.82	15.25
95793		186.	208.43	8.77	204.19	11.79	202.16	9.61	205.53	12.76
66176		187.	159.22	13.29	163.67	16.39	147.52	12.76	160.56	18.15
193692		188.	258.98	4.08	254.36	6.28	259.27	4.35	256.64	6.39
56556		189.	160.13	15.80	165.04	18.67	146.18	15.06	161.57	20.99
64210		190.	195.07	13.63	191.76	16.62	183.22	14.90	192.14	18.67
66932		191.	196.06	13.01	192.66	16.05	184.88	14.24	193.14	17.96
115285		192.	221.45	7.14	216.46	10.02	217.59	7.84	218.40	10.66
58471		193.	133.27	14.87	143.84	18.68	122.96	13.07	137.96	20.36
59204		194.	131.65	14.64	142.40	18.53	121.71	12.84	136.45	20.13
94326		195.	152.38	9.04	156.61	12.08	144.67	8.68	153.87	12.96
57838		196.	134.31	15.07	144.78	18.82	123.74	13.26	138.94	20.57
52089		197.	148.89	17.17	157.01	20.15	134.92	15.57	152.09	22.62
#VALUE!		198.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

C01080903

000792

s				AT TIME= -12 SEC					AT TIME= 0 SEC			
FLT217			Azimuth	Elevation	Azimuth	Elevation	Azimuth	Elevation	Azimuth	Elevation	
t=0		Witness Name	TWA800	TWA800	USA217	USA217	TWA800	TWA800	USA217	USA217	
#VALUE!		199.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	
143554		200.	88.32	5.54	94.83	8.64	87.18	5.10	91.45	8.60	
#VALUE!		201.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	
102872		202.	118.95	8.04	126.57	11.51	114.27	7.34	122.39	11.91	
75175		203.	207.43	11.36	202.32	14.58	198.91	12.73	203.82	16.10	
158323		204.	104.44	5.09	110.06	7.73	102.26	4.75	107.05	7.80	
59501		205.	186.13	14.91	184.67	17.70	172.48	15.80	184.08	20.04	
54740		206.	166.58	16.41	170.01	19.08	151.66	16.01	167.15	21.62	
65499		207.	156.38	13.43	161.47	16.57	144.75	12.77	158.07	18.33	
236391		208.	183.99	3.45	183.73	5.06	181.02	3.50	183.54	5.24	
75175		209.	207.43	11.36	202.32	14.58	198.91	12.73	203.82	16.10	
84030		210.	137.48	10.12	144.45	13.57	129.88	9.35	140.41	14.48	
85006		211.	197.15	10.05	194.23	13.07	188.85	10.83	194.77	14.32	
68397		212.	194.42	12.73	191.42	15.76	183.40	13.82	191.74	17.60	
77627		213.	195.71	11.09	192.80	14.14	186.34	11.99	193.23	15.62	
59030		214.	131.66	14.69	142.44	18.57	121.69	12.87	136.48	20.18	
67082		215.	141.93	12.95	149.72	16.45	131.90	11.83	145.16	17.93	
67352		216.	199.86	12.88	195.71	15.98	189.15	14.27	196.57	17.86	
59213		217.	167.26	15.05	170.30	17.89	153.57	14.78	167.70	20.13	
2271		218.	348.98	67.75	174.21	63.75	50.58	44.50	174.41	84.03	
59196		219.	131.15	14.63	141.99	18.54	121.28	12.81	136.00	20.13	
#VALUE!		220.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	
147040		221.	87.82	5.41	94.18	8.44	86.74	4.98	90.88	8.40	
68761		222.	193.68	12.66	190.85	15.69	182.67	13.71	191.09	17.52	
85006		223.	197.15	10.05	194.23	13.07	188.85	10.83	194.77	14.32	
107798		224.	106.81	7.56	114.91	11.17	103.46	6.85	110.58	11.38	
167015		225.	89.77	4.77	95.35	7.43	88.67	4.43	92.44	7.40	
85022		226.	101.18	9.57	111.74	14.07	97.71	8.41	106.16	14.32	
156814		227.	96.42	5.11	102.29	7.86	94.79	4.74	99.20	7.88	
85006		228.	197.15	10.05	194.23	13.07	188.85	10.83	194.77	14.32	
124834		229.	91.43	6.40	98.89	9.88	89.86	5.82	95.00	9.86	
109227		230.	228.00	7.51	222.08	10.57	224.64	8.34	224.51	11.24	
109227		231.	228.00	7.51	222.08	10.57	224.64	8.34	224.51	11.24	

C01080903

000793

Witness name	Recorder Down t=0			Apex t=15 sec			Right Wing Fail t=42			
	Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)	
100.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
101.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
102.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
103.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
104.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
105.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
106.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
107.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
108.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
109.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
110.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
111.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
112.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
113.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
114.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
115.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
116.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
117.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
118.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
119.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
120.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
121.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
122.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
123.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
124.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
125.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
126.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
127.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
128.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
129.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
130.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
131.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
132.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453

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0007794

s											
FLT217				AT TIME= -12 SEC					AT TIME= 0 SEC		
t=0		Witness Name	Azimuth TWA800	Elevation TWA800	Azimuth USA217	Elevation USA217	Azimuth TWA800	Elevation TWA800	Azimuth USA217	Elevation USA217
54709		232.	166.75	16.42	170.13	19.09	151.80	16.03	167.29	21.64
59213		233.	167.26	15.05	170.30	17.89	153.57	14.78	167.70	20.13
#VALUE!			#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

Witness Name	Witness Location		Primary Shooter Location		Ground Distance	Azimuth
	Latitude	Longitude	Latitude	Longitude	(ft)	(deg)
1.	40.8008	72.6276	40.60833	72.64667	70363	184.30
2.	40.7669	72.7539	40.60833	72.64667	64964	152.82
3.	40.74	72.85	40.60833	72.64667	73924	130.42
4.	40.7198	73.094	40.60833	72.64667	130206	108.04
5.	40.6532	73.1575	40.60833	72.64667	142277	96.44
6.	41.0171	72.2448	40.60833	72.64667	185746	216.78
7.	40.767	72.7539	40.60833	72.64667	64997	152.83
8.	40.7358	72.8542	40.60833	72.64667	73839	128.93
9.	40.7333	72.8667	40.60833	72.64667	76007	126.75
10.	40.794	72.807	40.60833	72.64667	80902	146.74
11.	40.794	72.807	40.60833	72.64667	80902	146.74
12.	40.7988	72.64	40.60833	72.64667	69461	181.52
13.	40.8009	72.7565	40.60833	72.64667	76483	156.58
14.	40.7897	72.6695	40.60833	72.64667	66420	174.54
15.	40.7841	72.7358	40.60833	72.64667	68650	158.94
16.	40.74	72.85	40.60833	72.64667	73924	130.42
17.	40.74	72.85	40.60833	72.64667	73924	130.42
18.	40.9783	73.0444	40.60833	72.64667	173900	140.73
19.	41.25	72.2	40.60833	72.64667	264303	207.89
20.	40.8418	72.5538	40.60833	72.64667	88896	196.81
21.	40.7815	72.7515	40.60833	72.64667	69462	155.31
22.	40.8383	72.8117	40.60833	72.64667	95434	151.41
23.	40.5945	73.5029	40.60833	72.64667	237053	88.50
24.	40.8125	72.6876	40.60833	72.64667	75286	171.35
25.	40.7495	72.8193	40.60833	72.64667	70189	137.10
26.	40.7471	72.7633	40.60833	72.64667	59992	147.45
27.	40.5784	73.3654	40.60833	72.64667	199264	86.63
28.	40.8278	72.6268	40.60833	72.64667	80197	183.93
29.	40.7367	72.8542	40.60833	72.64667	74046	129.13
30.	40.8443	72.5035	40.60833	72.64667	94682	204.74
31.	40.7125	73.0758	40.60833	72.64667	124604	107.60
32.	40.7833	72.6904	40.60833	72.64667	64921	169.25
33.	40.7748	72.8151	40.60833	72.64667	76489	142.45

C01080903

0007096

	Witness Location		Primary Shooter Location		Ground Distance	Azimuth
Witness Name	Latitude	Longitude	Latitude	Longitude	(ft)	(deg)
34.	40.9783	73.0449	40.60833	72.64667	173988	140.69
35.	40.8514	72.515	40.60833	72.64667	95788	202.36
36.	40.7687	72.7527	40.60833	72.64667	65399	153.34
37.	40.74	72.85	40.60833	72.64667	73924	130.42
38.	40.9192	72.2576	40.60833	72.64667	156156	223.60
39.	40.7698	72.7349	40.60833	72.64667	63717	157.46
40.	40.7915	72.6552	40.60833	72.64667	66817	177.97
41.	40.7982	72.6638	40.60833	72.64667	69380	176.08
42.	40.7369	72.8845	40.60833	72.64667	80754	125.40
43.	40.7961	72.6397	40.60833	72.64667	68479	181.61
44.	40.762	72.7763	40.60833	72.64667	66503	147.35
45.	40.9083	72.1838	40.60833	72.64667	168214	229.60
46.	40.9231	72.844	40.60833	72.64667	127030	154.54
47.	40.7517	72.9328	40.60833	72.64667	94813	123.36
48.	40.7939	72.6461	40.60833	72.64667	67650	180.13
49.	40.8383	72.4754	40.60833	72.64667	96269	209.50
50.	40.8383	72.4754	40.60833	72.64667	96269	209.50
51.	40.7811	72.6944	40.60833	72.64667	64351	168.15
52.	40.8198	72.6501	40.60833	72.64667	77098	179.29
53.	40.7356	73.0822	40.60833	72.64667	129054	110.93
54.	40.7223	73.1542	40.60833	72.64667	146368	106.33
55.	?	?	40.60833	72.64667	#VALUE!	#VALUE!
56.	?	?	40.60833	72.64667	#VALUE!	#VALUE!
57.	40.7928	72.6503	40.60833	72.64667	67257	179.14
58.	40.802	72.6594	40.60833	72.64667	70691	177.14
59.	40.8244	72.6663	40.60833	72.64667	78956	176.05
60.	40.8742	72.8079	40.60833	72.64667	106666	155.27
61.	40.7311	72.8771	40.60833	72.64667	77865	125.01
62.	?	?	40.60833	72.64667	#VALUE!	#VALUE!
63.	40.7669	72.7539	40.60833	72.64667	64964	152.82
64.	?	?	40.60833	72.64667	#VALUE!	#VALUE!
65.	40.8194	72.6507	40.60833	72.64667	76955	179.17
66.	40.8038	72.6125	40.60833	72.64667	71882	187.56

C01080903

0007697

Witness Name	Witness Location		Primary Shooter Location		Ground Distance	Azimuth
	Latitude	Longitude	Latitude	Longitude	(ft)	(deg)
67.	40.7669	72.7539	40.60833	72.64667	64964	152.82
68.	40.797	72.8313	40.60833	72.64667	85642	143.37
69.	40.7431	73.0287	40.60833	72.64667	116494	114.82
70.	40.7669	72.7539	40.60833	72.64667	64964	152.82
71.	40.7535	73.1828	40.60833	72.64667	157386	109.47
72.	40.8007	72.7406	40.60833	72.64667	74780	159.66
73.	40.7624	72.7762	40.60833	72.64667	66611	147.44
74.	?	?	40.60833	72.64667	#VALUE!	#VALUE!
75.	40.7478	73.0101	40.60833	72.64667	112612	116.72
76.	40.8045	72.7499	40.60833	72.64667	76995	158.22
77.	40.7747	72.815	40.60833	72.64667	76444	142.45
78.	40.7807	72.8542	40.60833	72.64667	85084	137.54
79.	?	?	40.60833	72.64667	#VALUE!	#VALUE!
80.	40.8282	72.7621	40.60833	72.64667	86267	158.26
81.	40.796	72.6705	40.60833	72.64667	68732	174.49
82.	40.785	72.7981	40.60833	72.64667	76811	146.93
83.	40.623	73.2595	40.60833	72.64667	169676	91.61
84.	40.7998	72.6454	40.60833	72.64667	69802	180.29
85.	40.7822	72.7369	40.60833	72.64667	68115	158.49
86.	40.8244	72.6664	40.60833	72.64667	78958	176.03
87.	?	?	40.60833	72.64667	#VALUE!	#VALUE!
88.	40.6167	72.7097	40.60833	72.64667	17709	99.90
89.	?	?	40.60833	72.64667	#VALUE!	#VALUE!
90.	?	?	40.60833	72.64667	#VALUE!	#VALUE!
91.	?	?	40.60833	72.64667	#VALUE!	#VALUE!
92.	?	?	40.60833	72.64667	#VALUE!	#VALUE!
93.	40.7631	72.7542	40.60833	72.64667	63774	152.18
94.	40.7134	73.0144	40.60833	72.64667	108670	110.52
95.	40.7303	72.8725	40.60833	72.64667	76659	125.38
96.	40.7661	72.7486	40.60833	72.64667	64047	153.87
97.	41.0833	73.3956	40.60833	72.64667	269518	129.73
98.	41.2201	73.0046	40.60833	72.64667	243852	156.03
99.	41.254	72.4417	40.60833	72.64667	242059	193.55

C01080903

0007987

	Witness Location		Primary Shooter Location		Ground Distance	Azimuth
Witness Name	Latitude	Longitude	Latitude	Longitude	(ft)	(deg)
100.	41.2227	73.0566	40.60833	72.64667	250833	153.11
101.	41.2227	73.0566	40.60833	72.64667	250833	153.11
102.	41.2672	72.6526	40.60833	72.64667	240202	179.61
103.	41.0678	73.3748	40.60833	72.64667	261511	129.59
104.	?	?	40.60833	72.64667	#VALUE!	#VALUE!
105.	40.7632	72.7723	40.60833	72.64667	66285	148.36
106.	40.6167	72.7097	40.60833	72.64667	17709	99.90
107.	40.8752	72.5084	40.60833	72.64667	104516	201.48
108.	40.7807	72.8542	40.60833	72.64667	85084	137.54
109.	40.7883	72.6687	40.60833	72.64667	65891	174.69
110.	40.8383	72.4754	40.60833	72.64667	96269	209.50
111.	40.7961	72.9032	40.60833	72.64667	98552	133.91
112.	40.8009	72.7565	40.60833	72.64667	76483	156.58
113.	40.8009	72.7565	40.60833	72.64667	76483	156.58
114.	40.7835	72.6847	40.60833	72.64667	64718	170.64
115.	40.7835	72.6847	40.60833	72.64667	64718	170.64
116.	40.7835	72.6847	40.60833	72.64667	64718	170.64
117.	40.6627	73.3696	40.60833	72.64667	200981	95.42
118.	?	?	40.60833	72.64667	#VALUE!	#VALUE!
119.	?	?	40.60833	72.64667	#VALUE!	#VALUE!
120.	?	?	40.60833	72.64667	#VALUE!	#VALUE!
121.	40.7961	72.9032	40.60833	72.64667	98552	133.91
122.	40.6491	73.4577	40.60833	72.64667	224888	93.53
123.	40.752	72.9336	40.60833	72.64667	95058	123.34
124.	40.752	72.9336	40.60833	72.64667	95058	123.34
125.	40.7632	72.7723	40.60833	72.64667	66285	148.36
126.	40.7667	72.7465	40.60833	72.64667	63991	154.42
127.	40.7687	72.7527	40.60833	72.64667	65399	153.34
128.	40.8125	72.6876	40.60833	72.64667	75286	171.35
129.	40.7424	72.8314	40.60833	72.64667	70694	133.68
130.	40.7252	72.8868	40.60833	72.64667	78895	122.61
131.	40.735	72.8602	40.60833	72.64667	74956	127.96
132.	?	?	40.60833	72.64667	#VALUE!	#VALUE!

C01080903

0007699

Witness Name	Witness Location		Primary Shooter Location		Ground Distance	Azimuth
	Latitude	Longitude	Latitude	Longitude	(ft)	(deg)
133.	40.8196	72.5635	40.60833	72.64667	80375	196.64
134.	40.767	72.7539	40.60833	72.64667	64997	152.83
135.	40.7368	72.8542	40.60833	72.64667	74069	129.15
136.	40.7894	72.664	40.60833	72.64667	66183	175.84
137.	40.7355	72.86	40.60833	72.64667	75025	128.10
138.	40.6784	73.6758	40.60833	72.64667	285821	94.79
139.	?	?	40.60833	72.64667	#VALUE!	#VALUE!
140.	40.767	73.003	40.60833	72.64667	114231	120.31
141.	40.8196	72.5635	40.60833	72.64667	80375	196.64
142.	40.7665	72.7552	40.60833	72.64667	65000	152.48
143.	?	?	40.60833	72.64667	#VALUE!	#VALUE!
144.	40.7626	72.7755	40.60833	72.64667	66568	147.61
145.	40.8313	72.7548	40.60833	72.64667	86602	159.78
146.	40.9581	72.6208	40.60833	72.64667	127711	183.21
147.	40.737	72.8524	40.60833	72.64667	73730	129.44
148.	40.7909	72.661	40.60833	72.64667	66674	176.59
149.	40.7228	73.0744	40.60833	72.64667	125426	109.29
150.	40.7823	72.6889	40.60833	72.64667	64487	169.56
151.	?	?	40.60833	72.64667	#VALUE!	#VALUE!
152.	40.7304	72.8746	40.60833	72.64667	77153	125.15
153.	40.7399	73.0314	40.60833	72.64667	116689	114.14
154.	40.7387	73.0312	40.60833	72.64667	116460	113.96
155.	40.7851	72.6829	40.60833	72.64667	65216	171.15
156.	40.8174	72.6137	40.60833	72.64667	76760	186.83
157.	?	?	40.60833	72.64667	#VALUE!	#VALUE!
158.	40.6419	72.2306	40.60833	72.64667	115772	264.07
159.	?	?	40.60833	72.64667	#VALUE!	#VALUE!
160.	40.7961	72.9032	40.60833	72.64667	98552	133.91
161.	40.7664	72.754	40.60833	72.64667	64815	152.72
162.	40.785	72.7977	40.60833	72.64667	76751	147.00
163.	40.785	72.7977	40.60833	72.64667	76751	147.00
164.	40.7434	72.8691	40.60833	72.64667	78783	128.61
165.	40.7953	72.8073	40.60833	72.64667	81344	146.87

C01080903

000800

	Witness Location		Primary Shooter Location		Ground Distance	Azimuth
Witness Name	Latitude	Longitude	Latitude	Longitude	(ft)	(deg)
166.	40.8498	72.4762	40.60833	72.64667	99835	208.20
167.	40.7979	72.6326	40.60833	72.64667	69218	183.22
168.	40.8477	72.5031	40.60833	72.64667	95854	204.49
169.	41.0615	73.4344	40.60833	72.64667	272949	126.99
170.	40.8644	72.4114	40.60833	72.64667	113746	214.92
171.	40.91	72.6439	40.60833	72.64667	109978	180.40
172.	40.4868	73.8607	40.60833	72.64667	339211	82.10
173.	40.7909	72.7532	40.60833	72.64667	72779	156.10
174.	40.8361	72.4966	40.60833	72.64667	92811	206.58
175.	40.8528	72.4114	40.60833	72.64667	110305	216.18
176.	40.9168	72.6621	40.60833	72.64667	112535	177.82
177.	?	?	40.60833	72.64667	#VALUE!	#VALUE!
178.	40.7971	72.6547	40.60833	72.64667	68853	178.15
179.	?	?	40.60833	72.64667	#VALUE!	#VALUE!
180.	40.8255	72.6454	40.60833	72.64667	79171	180.25
181.	40.7134	73.0144	40.60833	72.64667	108670	110.52
182.	40.7671	72.9964	40.60833	72.64667	112680	120.79
183.	40.9435	72.86205	40.60833	72.64667	135888	153.98
184.	40.7909	72.6587	40.60833	72.64667	66640	177.14
185.	40.8011	72.8671	40.60833	72.64667	93005	139.01
186.	40.8555	72.5605	40.60833	72.64667	93198	194.83
187.	40.7895	72.7893	40.60833	72.64667	76917	149.12
188.	40.7431	72.0287	40.60833	72.64667	177782	254.16
189.	40.7655	72.7743	40.60833	72.64667	67289	148.33
190.	40.7905	72.6609	40.60833	72.64667	66527	176.61
191.	40.7971	72.6547	40.60833	72.64667	68853	178.15
192.	40.8664	72.4509	40.60833	72.64667	108515	209.95
193.	40.7375	72.8512	40.60833	72.64667	73591	129.72
194.	40.7361	72.8571	40.60833	72.64667	74532	128.61
195.	40.8507	72.8598	40.60833	72.64667	106179	146.25
196.	40.738	72.847	40.60833	72.64667	72820	130.41
197.	40.7446	72.7978	40.60833	72.64667	64915	139.88
198.	?	?	40.60833	72.64667	#VALUE!	#VALUE!

C01080903

000801

	Witness Location		Primary Shooter Location		Ground Distance	Azimuth
Witness Name	Latitude	Longitude	Latitude	Longitude	(ft)	(deg)
199.	?	?	40.60833	72.64667	#VALUE!	#VALUE!
200.	40.6294	73.2283	40.60833	72.64667	161133	92.54
201.	?	?	40.60833	72.64667	#VALUE!	#VALUE!
202.	40.7699	73.0236	40.60833	72.64667	119691	119.36
203.	40.807	72.6	40.60833	72.64667	73565	190.11
204.	40.7469	73.2567	40.60833	72.64667	176063	106.47
205.	40.7811	72.6944	40.60833	72.64667	64351	168.15
206.	40.7647	72.7537	40.60833	72.64667	64227	152.53
207.	40.785	72.7981	40.60833	72.64667	76811	146.93
208.	41.2655	72.6569	40.60833	72.64667	239593	179.32
209.	40.807	72.6	40.60833	72.64667	73565	190.11
210.	40.7961	72.9032	40.60833	72.64667	98552	133.91
211.	40.8438	72.6314	40.60833	72.64667	85945	182.82
212.	40.802	72.6594	40.60833	72.64667	70691	177.14
213.	40.8256	72.6455	40.60833	72.64667	79207	180.23
214.	40.7358	72.8566	40.60833	72.64667	74356	128.61
215.	40.7694	72.8482	40.60833	72.64667	80941	136.44
216.	40.7954	72.6403	40.60833	72.64667	68220	181.48
217.	40.777	72.7553	40.60833	72.64667	68429	153.94
218.	40.6245	72.7105	40.60833	72.64667	18622	108.43
219.	40.7352	72.8583	40.60833	72.64667	74588	128.25
220.	?	?	40.60833	72.64667	#VALUE!	#VALUE!
221.	40.6257	73.241	40.60833	72.64667	164591	92.01
222.	40.8034	72.6619	40.60833	72.64667	71238	176.61
223.	40.8438	72.6314	40.60833	72.64667	85945	182.82
224.	40.7228	73.0744	40.60833	72.64667	125426	109.29
225.	40.6394	73.3127	40.60833	72.64667	184639	93.30
226.	40.6836	73.0048	40.60833	72.64667	102793	105.37
227.	40.6884	73.2691	40.60833	72.64667	174621	99.42
228.	40.8438	72.6314	40.60833	72.64667	85945	182.82
229.	40.649	73.1591	40.60833	72.64667	142553	95.80
230.	40.8323	72.433	40.60833	72.64667	100757	215.94
231.	40.8323	72.433	40.60833	72.64667	100757	215.94

C01080903

000802

Witness Name	Witness Location		Primary Shooter Location		Ground Distance	Azimuth
	Latitude	Longitude	Latitude	Longitude	(ft)	(deg)
232.	40.7647	72.7532	40.60833	72.64667	64163	152.64
233.	40.777	72.7553	40.60833	72.64667	68429	153.94
	?	?	40.60833	72.64667	#VALUE!	#VALUE!
	?	?	40.60833	72.64667	#VALUE!	#VALUE!
	?	?	40.60833	72.64667	#VALUE!	#VALUE!
	?	?	40.60833	72.64667	#VALUE!	#VALUE!
	?	?	40.60833	72.64667	#VALUE!	#VALUE!
	?	?	40.60833	72.64667	#VALUE!	#VALUE!
	?	?	40.60833	72.64667	#VALUE!	#VALUE!
	?	?	40.60833	72.64667	#VALUE!	#VALUE!
	?	?	40.60833	72.64667	#VALUE!	#VALUE!
	?	?	40.60833	72.64667	#VALUE!	#VALUE!
	?	?	40.60833	72.64667	#VALUE!	#VALUE!
	?	?	40.60833	72.64667	#VALUE!	#VALUE!
	?	?	40.60833	72.64667	#VALUE!	#VALUE!
	?	?	40.60833	72.64667	#VALUE!	#VALUE!
	?	?	40.60833	72.64667	#VALUE!	#VALUE!
	?	?	40.60833	72.64667	#VALUE!	#VALUE!
	?	?	40.60833	72.64667	#VALUE!	#VALUE!
	?	?	40.60833	72.64667	#VALUE!	#VALUE!
	?	?	40.60833	72.64667	#VALUE!	#VALUE!
	?	?	40.60833	72.64667	#VALUE!	#VALUE!
	?	?	40.60833	72.64667	#VALUE!	#VALUE!
	?	?	40.60833	72.64667	#VALUE!	#VALUE!
	?	?	40.60833	72.64667	#VALUE!	#VALUE!
	?	?	40.60833	72.64667	#VALUE!	#VALUE!
	?	?	40.60833	72.64667	#VALUE!	#VALUE!
	?	?	40.60833	72.64667	#VALUE!	#VALUE!
	?	?	40.60833	72.64667	#VALUE!	#VALUE!
	?	?	40.60833	72.64667	#VALUE!	#VALUE!
	?	?	40.60833	72.64667	#VALUE!	#VALUE!
	?	?	40.60833	72.64667	#VALUE!	#VALUE!
	?	?	40.60833	72.64667	#VALUE!	#VALUE!
	?	?	40.60833	72.64667	#VALUE!	#VALUE!

C01080903

000803

	Recorder Down t=0			Apex t=15 sec			Right Wing Fail t=42			
Witness name	Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)	
133.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
134.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
135.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
136.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
137.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
138.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
139.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
140.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
141.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
142.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
143.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
144.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
145.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
146.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
147.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
148.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
149.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
150.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
151.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
152.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
153.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
154.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
155.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
156.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
157.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
158.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
159.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
160.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
161.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
162.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
163.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
164.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
165.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453

C01080903

000804

	Recorder Down t=0			Apex t=15 sec			Right Wing Fail t=42			
Witness name	Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)	
166.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
167.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
168.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
169.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
170.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
171.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
172.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
173.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
174.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
175.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
176.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
177.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
178.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
179.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
180.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
181.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
182.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
183.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
184.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
185.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
186.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
187.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
188.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
189.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
190.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
191.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
192.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
193.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
194.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
195.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
196.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
197.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
198.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453

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000805

Witness name	Recorder Down t=0			Apex t=15 sec			Right Wing Fail t=42			
	Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)	
199.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
200.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
201.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
202.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
203.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
204.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
205.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
206.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
207.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
208.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
209.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
210.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
211.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
212.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
213.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
214.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
215.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
216.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
217.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
218.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
219.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
220.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
221.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
222.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
223.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
224.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
225.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
226.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
227.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
228.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
229.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
230.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
231.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453

C01080903

000806

Witness name	Recorder Down t=0			Apex t=15 sec			Right Wing Fail t=42			
	Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)	
232.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
233.	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
	40.64889	72.67139	13760	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453

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000807

Witness name	Witness Location		Witness	Ground Dist (ft)	Ground Dist (ft)	Ground Dist (ft)	Az (deg) [1]	Az (deg) [2]	Az (deg) [3]	Closest Az
	Latitude	Longitude	Azimuth	t=0	t=15	t=42	t=0	t=15	t=42	(deg)
1.	40.8008	72.6276	?	56687	55099	49118	192.34	190.53	181.26	#VALUE!
2.	40.7669	72.7539	?	48691	48638	49943	152.05	149.25	137.33	#VALUE!
3.	40.74	72.85	?	59503	60561	66125	123.87	121.85	113.97	#VALUE!
4.	40.7198	73.094	?	119657	121398	129332	102.34	101.57	98.56	#VALUE!
5.	40.6532	73.1575	?	134462	136493	145543	90.51	89.99	87.98	#VALUE!
6.	41.0171	72.2448	?	178506	176255	166578	221.38	221.13	219.94	#VALUE!
7.	40.767	72.7539	?	48723	48670	49969	152.07	149.28	137.36	#VALUE!
8.	40.7358	72.8542	?	59644	60768	66589	122.03	120.04	112.36	#VALUE!
9.	40.7333	72.8667	?	62143	63352	69469	119.62	117.75	110.57	#VALUE!
10.	40.794	72.807	?	64827	65064	67266	144.65	142.56	133.82	#VALUE!
11.	40.794	72.807	?	64827	65064	67266	144.65	142.56	133.82	#VALUE!
12.	40.7988	72.64	?	55335	53854	48434	189.03	187.08	177.22	#VALUE!
13.	40.8009	72.7565	?	60200	59932	60061	156.98	154.73	144.86	#VALUE!
14.	40.7897	72.6695	?	51337	50150	46266	180.58	178.26	166.87	#VALUE!
15.	40.7841	72.7358	?	52407	52017	51778	160.13	157.56	146.15	#VALUE!
16.	40.74	72.85	?	59503	60561	66125	123.87	121.85	113.97	#VALUE!
17.	40.74	72.85	?	59503	60561	66125	123.87	121.85	113.97	#VALUE!
18.	40.9783	73.0444	?	158158	158583	161026	139.28	138.44	134.84	#VALUE!
19.	41.25	72.2	?	254694	252620	243771	210.79	210.53	209.31	#VALUE!
20.	40.8418	72.5538	?	77465	75525	67552	204.83	203.80	198.55	#VALUE!
21.	40.7815	72.7515	?	53172	52977	53564	155.37	152.82	141.72	#VALUE!
22.	40.8383	72.8117	?	79184	79165	80110	150.65	148.93	141.54	#VALUE!
23.	40.5945	73.5029	?	230939	233077	242502	84.80	84.55	83.54	#VALUE!
24.	40.8125	72.6876	?	59814	58802	55576	175.70	173.63	163.79	#VALUE!
25.	40.7495	72.8193	?	54923	55683	60149	131.85	129.52	120.30	#VALUE!
26.	40.7471	72.7633	?	43901	44161	46890	144.61	141.54	128.99	#VALUE!
27.	40.5784	73.3654	?	193774	195958	205577	82.15	81.88	80.81	#VALUE!
28.	40.8278	72.6268	?	66377	64836	58964	190.71	189.13	181.26	#VALUE!
29.	40.7367	72.8542	?	59819	60933	66714	122.30	120.31	112.62	#VALUE!
30.	40.8443	72.5035	?	85001	82882	73959	213.11	212.38	208.59	#VALUE!
31.	40.7125	73.0758	?	114185	115949	123977	101.59	100.79	97.70	#VALUE!
32.	40.7833	72.6904	?	49282	48347	45720	173.87	171.31	159.13	#VALUE!
33.	40.7748	72.8151	?	60697	61164	64372	139.09	136.90	127.94	#VALUE!

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000808

Recorder Down t=0				Witness Name
Lat	Long	Alt(ft)		
40.65	**72.69**	**13820**	**0.017**	1.
40.65	72.69	13820	0.017	2.
40.65	72.69	13820	0.017	3.
40.65	72.69	13820	0.017	4.
40.65	72.69	13820	0.017	5.
40.65	72.69	13820	0.017	6.
40.65	72.69	13820	0.017	7.
40.65	72.69	13820	0.017	8.
40.65	72.69	13820	0.017	9.
40.65	72.69	13820	0.017	10
40.65	72.69	13820	0.017	11
40.65	72.69	13820	0.017	12
40.65	72.69	13820	0.017	13
40.65	72.69	13820	0.017	14
40.65	72.69	13820	0.017	15
40.65	72.69	13820	0.017	16
40.65	72.69	13820	0.017	17
40.65	72.69	13820	0.017	18
40.65	72.69	13820	0.017	19
40.65	72.69	13820	0.017	20
40.65	72.69	13820	0.017	21
40.65	72.69	13820	0.017	22
40.65	72.69	13820	0.017	23
40.65	72.69	13820	0.017	24
40.65	72.69	13820	0.017	25
40.65	72.69	13820	0.017	26
40.65	72.69	13820	0.017	27
40.65	72.69	13820	0.017	28
40.65	72.69	13820	0.017	29
40.65	72.69	13820	0.017	30
40.65	72.69	13820	0.017	31
40.65	72.69	13820	0.017	32
40.65	72.69	13820	0.017	33

Witness Location		Ground	Ground Dist (ft)	Ground Dist (ft)	Ground Dist (ft)	Ground Dist (ft)
Lat	Long	Dist (ft)	East	East	North	East
40.8008	**72.6276**	58772	16431	16392	56434	16412
40.7669	**72.7539**	47796	-18505	-18472	44075	-18488
40.74	**72.85**	56607	-45087	-45024	34269	-45056
40.7198	**73.094**	115690	-112580	-112455	26905	-112518
40.6532	**73.1575**	130164	-130145	-130131	2625	-130138
41.0171	**72.2448**	182156	122317	121634	135288	121975
40.767	**72.7539**	47830	-18505	-18472	44112	-18488
40.7358	**72.8542**	56638	-46249	-46187	32737	-46218
40.7333	**72.8667**	58995	-49707	-49642	31826	-49674
40.794	**72.807**	63328	-33193	-33119	53955	-33156
40.794	**72.807**	63328	-33193	-33119	53955	-33156
40.7988	**72.64**	57198	13001	12971	55705	12986
40.8009	**72.7565**	59646	-19224	-19180	56470	-19202
40.7897	**72.6695**	52610	4841	4830	52387	4835
40.7841	**72.7358**	52120	-13499	-13471	50346	-13485
40.74	**72.85**	56607	-45087	-45024	34269	-45056
40.74	**72.85**	56607	-45087	-45024	34269	-45056
40.9783	**73.0444**	156206	-98860	-98366	121143	-98613
41.25	**72.2**	257812	134709	133482	220194	134095
40.8418	**72.5538**	80304	36844	36736	71381	36790
40.7815	**72.7515**	52515	-17841	-17805	49398	-17823
40.8383	**72.8117**	78109	-34493	-34394	70105	-34443
40.5945	**73.5029**	226551	-225685	-225859	18775	-225772
40.8125	**72.6876**	60699	-166	-166	60699	-166
40.7495	**72.8193**	52544	-36595	-36539	37732	-36567
40.7471	**72.7633**	42464	-21105	-21073	36857	-21089
40.5784	**73.3654**	189357	-187651	-187841	24644	-187746
40.8278	**72.6268**	68331	16652	16606	66277	16629
40.7367	**72.8542**	56828	-46249	-46186	33066	-46218
40.8443	**72.5035**	88289	50758	50607	72292	50682
40.7125	**73.0758**	110192	-107546	-107438	24243	-107492
40.7833	**72.6904**	50063	-940	-939	50054	-940
40.7748	**72.8151**	58804	-35434	-35365	46955	-35399

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Recorder Down t=0					Witness Location		Ground	Ground	Ground	Ground	Ground
Lat	Long	Alt(ft)		Witness Name	Lat	Long	Dist (ft) t=0	Dist (ft) East	Dist (ft) East	Dist (ft) North	Dist (ft) East
40.65	72.69	13820	0.017	34	40.9783	73.0449	156293	-98998	-98504	121143	-98751
40.65	72.69	13820	0.017	35	40.8514	72.515	88677	47577	47430	74881	47503
40.65	72.69	13820	0.017	36	40.7687	72.7527	48276	-18173	-18140	44732	-18157
40.65	72.69	13820	0.017	37	40.74	72.85	56607	-45087	-45024	34269	-45056
40.65	72.69	13820	0.017	38	40.9192	72.2576	154821	118776	118288	99598	118532
40.65	72.69	13820	0.017	39	40.7698	72.7349	47034	-13250	-13225	45133	-13237
40.65	72.69	13820	0.017	40	40.7915	72.6552	53766	8796	8777	53043	8787
40.65	72.69	13820	0.017	41	40.7982	72.6638	55855	6417	6403	55486	6410
40.65	72.69	13820	0.017	42	40.7369	72.8845	63864	-54630	-54556	33139	-54593
40.65	72.69	13820	0.017	43	40.7961	72.6397	56259	13084	13054	54720	13069
40.65	72.69	13820	0.017	44	40.762	72.7763	48964	-24701	-24658	42289	-24680
40.65	72.69	13820	0.017	45	40.7691	72.5862	52820	27882	27831	44877	27856
40.65	72.69	13820	0.017	46	40.9231	72.844	109923	-43428	-43247	101020	-43337
40.65	72.69	13820	0.017	47	40.7517	72.9328	78104	-67991	-67883	38534	-67937
40.65	72.69	13820	0.017	48	40.7939	72.6461	55090	11313	11288	53918	11301
40.65	72.69	13820	0.017	49	40.8383	72.4754	91272	58531	58362	70105	58446
40.65	72.69	13820	0.017	50	40.8383	72.4754	91272	58531	58362	70105	58446
40.65	72.69	13820	0.017	51	40.7811	72.6944	49294	-2047	-2043	49252	-2045
40.65	72.69	13820	0.017	52	40.8198	72.6501	64175	10207	10180	63361	10194
40.65	72.69	13820	0.017	53	40.7356	73.0822	114021	-109316	-109169	32665	-109242
40.65	72.69	13820	0.017	54	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017	55	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017	56	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017	57	40.7928	72.6503	54470	10152	10129	53517	10140
40.65	72.69	13820	0.017	58	40.802	72.6594	57380	7634	7617	56871	7625
40.65	72.69	13820	0.017	59	40.8244	72.6663	65288	5726	5710	65038	5718
40.65	72.69	13820	0.017	60	40.8742	72.8079	89641	-33442	-33327	83193	-33385
40.65	72.69	13820	0.017	61	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017	62	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017	63	40.7669	72.7539	47796	-18505	-18472	44075	-18488
40.65	72.69	13820	0.017	64	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017	65	40.8194	72.6507	64005	10041	10015	63215	10028
40.65	72.69	13820	0.017	66	40.8038	72.6125	61099	20607	20559	57528	20583

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Recorder Down t=0				Witness Name	Witness Location		Ground Dist (ft)	Ground Dist (ft)	Ground Dist (ft)	Ground Dist (ft)	Ground Dist (ft)
Lat	Long	Alt(ft)			Lat	Long	t=0	East	East	North	East
40.65	72.69	13820	0.017	67.	40.7669	72.7539	47796	-18505	-18472	44075	-18488
40.65	72.69	13820	0.017	68.	40.797	72.8313	67970	-39915	-39824	55049	-39870
40.65	72.69	13820	0.017	69.	40.7431	73.0287	100864	-94517	-94380	35399	-94449
40.65	72.69	13820	0.017	70.	40.7669	72.7539	47796	-18505	-18472	44075	-18488
40.65	72.69	13820	0.017	71.	40.7535	73.1828	142526	-137143	-136922	39190	-137032
40.65	72.69	13820	0.017	72.	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017	73.	40.7624	72.7762	49076	-24674	-24630	42435	-24652
40.65	72.69	13820	0.017	74.	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017	75.	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017	76.	40.8045	72.7499	60339	-17399	-17357	57783	-17378
40.65	72.69	13820	0.017	77.	40.7747	72.815	58758	-35406	-35338	46919	-35372
40.65	72.69	13820	0.017	78.	40.7807	72.8542	67425	-46249	-46156	49106	-46202
40.65	72.69	13820	0.017	79.	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017	80.	40.8282	72.7621	69587	-20773	-20717	66423	-20745
40.65	72.69	13820	0.017	81.	40.796	72.6705	54874	4564	4554	54684	4559
40.65	72.69	13820	0.017	82.	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017	83.	40.623	73.2595	158608	-158359	-158413	8385	-158386
40.65	72.69	13820	0.017	84.	40.7998	72.6454	57235	11507	11480	56069	11494
40.65	72.69	13820	0.017	85.	40.7822	72.7369	51532	-13803	-13775	49653	-13789
40.65	72.69	13820	0.017	86.	40.8244	72.6664	65286	5698	5683	65038	5691
40.65	72.69	13820	0.017	87.	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017	88.	40.6167	72.7097	12391	-6279	-6282	10682	-6280
40.65	72.69	13820	0.017	89.	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017	90.	40.603	72.6508	18603	10013	10020	15676	10016
40.65	72.69	13820	0.017	91.	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017	92.	40.7022	72.773	31388	-23788	-23768	20488	-23778
40.65	72.69	13820	0.017	93.	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017	94.	40.7134	73.0144	93792	-90562	-90470	24571	-90516
40.65	72.69	13820	0.017	95.	40.7303	72.8725	59783	-51311	-51246	30732	-51279
40.65	72.69	13820	0.017	96.	40.7661	72.7486	46977	-17039	-17008	43784	-17024
40.65	72.69	13820	0.017	97.	41.0833	73.3956	252152	-196005	-194715	159422	-195360
40.65	72.69	13820	0.017	98.	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017	99.	41.254	72.4417	231715	67852	67230	221652	67541

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Recorder Down t=0				Witness Name
Lat	Long	Alt(ft)		
40.65	72.69	13820	0.017	100.
40.65	72.69	13820	0.017	101.
40.65	72.69	13820	0.017	102.
40.65	72.69	13820	0.017	103.
40.65	72.69	13820	0.017	104.
40.65	72.69	13820	0.017	105.
40.65	72.69	13820	0.017	106.
40.65	72.69	13820	0.017	107.
40.65	72.69	13820	0.017	108.
40.65	72.69	13820	0.017	109.
40.65	72.69	13820	0.017	110.
40.65	72.69	13820	0.017	111.
40.65	72.69	13820	0.017	112.
40.65	72.69	13820	0.017	113.
40.65	72.69	13820	0.017	114.
40.65	72.69	13820	0.017	115.
40.65	72.69	13820	0.017	116.
40.65	72.69	13820	0.017	117.
40.65	72.69	13820	0.017	118.
40.65	72.69	13820	0.017	119.
40.65	72.69	13820	0.017	120.
40.65	72.69	13820	0.017	121.
40.65	72.69	13820	0.017	122.
40.65	72.69	13820	0.017	123.
40.65	72.69	13820	0.017	124.
40.65	72.69	13820	0.017	125.
40.65	72.69	13820	0.017	126.
40.65	72.69	13820	0.017	127.
40.65	72.69	13820	0.017	128.
40.65	72.69	13820	0.017	129.
40.65	72.69	13820	0.017	130.
40.65	72.69	13820	0.017	131.
40.65	72.69	13820	0.017	132.

Witness Location		Ground Dist (ft)	Ground Dist (ft)	Ground Dist (ft)	Ground Dist (ft)	Ground Dist (ft)
Lat	Long	t=0	East	East	North	East
41.2227	73.0566	233587	-102235	-101346	210242	-101790
41.2227	73.0566	233587	-102235	-101346	210242	-101790
41.2672	72.6526	226663	9515	9426	226465	9471
41.0678	73.3748	244155	-190251	-189044	153771	-189648
?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.7632	72.7723	48798	-23595	-23553	42726	-23574
40.6167	72.7097	12391	-6279	-6282	10682	-6280
40.8752	72.5084	97026	49402	49232	83557	49317
40.7807	72.8542	67425	-46249	-46156	49106	-46202
40.7883	72.6687	52123	5062	5051	51877	5057
40.8383	72.4754	91272	58531	58362	70105	58446
40.7961	72.9032	81010	-59803	-59668	54720	-59736
40.8009	72.7565	59646	-19224	-19180	56470	-19202
40.8009	72.7565	59646	-19224	-19180	56470	-19202
40.7835	72.6847	50131	636	635	50127	636
40.7835	72.6847	50131	636	635	50127	636
40.7835	72.6847	50131	636	635	50127	636
40.6627	73.3696	188888	-188813	-188766	6088	-188789
?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.7961	72.9032	81010	-59803	-59668	54720	-59736
40.6491	73.4577	213180	-213182	-213172	1130	-213177
40.752	72.9336	78350	-68212	-68103	38643	-68158
40.752	72.9336	78350	-68212	-68103	38643	-68158
40.7632	72.7723	48798	-23595	-23553	42726	-23574
40.7667	72.7465	46974	-16458	-16428	44002	-16443
40.7687	72.7527	48276	-18173	-18140	44732	-18157
40.8125	72.6876	60699	-166	-166	60699	-166
40.7424	72.8314	53180	-39942	-39885	35144	-39914
40.7252	72.8868	62325	-55267	-55201	28873	-55234
40.735	72.8602	57835	-47909	-47845	32446	-47877
?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

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Recorder Down t=0				Witness Name
Lat	Long	Alt(ft)		
40.65	72.69	13820	0.017	133.
40.65	72.69	13820	0.017	134.
40.65	72.69	13820	0.017	135.
40.65	72.69	13820	0.017	136.
40.65	72.69	13820	0.017	137.
40.65	72.69	13820	0.017	138.
40.65	72.69	13820	0.017	139.
40.65	72.69	13820	0.017	140.
40.65	72.69	13820	0.017	141.
40.65	72.69	13820	0.017	142.
40.65	72.69	13820	0.017	143.
40.65	72.69	13820	0.017	144.
40.65	72.69	13820	0.017	145.
40.65	72.69	13820	0.017	146.
40.65	72.69	13820	0.017	147.
40.65	72.69	13820	0.017	148.
40.65	72.69	13820	0.017	149.
40.65	72.69	13820	0.017	150.
40.65	72.69	13820	0.017	151.
40.65	72.69	13820	0.017	152.
40.65	72.69	13820	0.017	153.
40.65	72.69	13820	0.017	154.
40.65	72.69	13820	0.017	155
40.65	72.69	13820	0.017	156.
40.65	72.69	13820	0.017	157
40.65	72.69	13820	0.017	158
40.65	72.69	13820	0.017	159.
40.65	72.69	13820	0.017	160
40.65	72.69	13820	0.017	161
40.65	72.69	13820	0.017	162
40.65	72.69	13820	0.017	163
40.65	72.69	13820	0.017	164
40.65	72.69	13820	0.017	165

Witness Location		Ground Dist (ft)	Ground Dist (ft)	Ground Dist (ft)	Ground Dist (ft)	Ground Dist (ft)
Lat	Long	t=0	East	East	North	East
40.8196	72.5635	71898	34161	34072	63288	34117
40.767	72.7539	47830	-18505	-18472	44112	-18488
40.7368	72.8542	56849	-46249	-46186	33102	-46218
40.7894	72.664	52663	6362	6348	52278	6355
40.7355	72.86	57892	-47853	-47789	32628	-47821
40.6784	73.6758	273698	-273510	-273377	11812	-273444
?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.767	73.003	97838	-87409	-87250	44112	-87329
40.8196	72.5635	71898	34161	34072	63288	34117
40.7665	72.7552	47802	-18865	-18831	43929	-18848
?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.7626	72.7755	49042	-24480	-24437	42508	-24459
40.8313	72.7548	70101	-18754	-18702	67553	-18728
40.9581	72.6208	115236	18312	18226	113779	18269
40.737	72.8524	56488	-45751	-45689	33175	-45720
40.7909	72.661	53311	7192	7176	52825	7184
40.7228	73.0744	110696	-107158	-107035	27998	-107097
40.7823	72.6889	49692	-526	-524	49690	-525
?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.7304	72.8746	60300	-51892	-51826	30769	-51859
40.7399	73.0314	101165	-95264	-95130	34232	-95197
40.7387	73.0312	100966	-95209	-95077	33795	-95143
40.7851	72.6829	50723	1134	1132	50710	1133
40.8174	72.6137	65685	20275	20223	62486	20249
?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6419	72.2306	126257	126244	126252	1495	126248
?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.7961	72.9032	81010	-59803	-59668	54720	-59736
40.7664	72.754	47639	-18533	-18499	43893	-18516
40.785	72.7977	59190	-30621	-30557	50674	-30589
40.785	72.7977	59190	-30621	-30557	50674	-30589
40.7434	72.8691	61598	-50371	-50297	35508	-50334
40.7953	72.8073	63776	-33276	-33202	54429	-33239

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Recorder Down t=0				Witness Name
Lat	Long	Alt(ft)		
40.65	72.69	13820	0.017	166.
40.65	72.69	13820	0.017	167.
40.65	72.69	13820	0.017	168.
40.65	72.69	13820	0.017	169.
40.65	72.69	13820	0.017	170.
40.65	72.69	13820	0.017	171.
40.65	72.69	13820	0.017	172.
40.65	72.69	13820	0.017	173.
40.65	72.69	13820	0.017	174.
40.65	72.69	13820	0.017	175.
40.65	72.69	13820	0.017	176.
40.65	72.69	13820	0.017	177.
40.65	72.69	13820	0.017	**178.**
40.65	72.69	13820	0.017	179.
40.65	72.69	13820	0.017	180.
40.65	72.69	13820	0.017	**181.**
40.65	72.69	13820	0.017	182.
40.65	72.69	13820	0.017	183.
40.65	72.69	13820	0.017	184.
40.65	72.69	13820	0.017	185.
40.65	72.69	13820	0.017	186.
40.65	72.69	13820	0.017	187.
40.65	72.69	13820	0.017	188.
40.65	72.69	13820	0.017	189.
40.65	72.69	13820	0.017	190.
40.65	72.69	13820	0.017	191.
40.65	72.69	13820	0.017	192.
40.65	72.69	13820	0.017	193.
40.65	72.69	13820	0.017	194.
40.65	72.69	13820	0.017	195.
40.65	72.69	13820	0.017	196.
40.65	72.69	13820	0.017	197.
40.65	72.69	13820	0.017	198.

Witness Location		Ground Dist (ft)	Ground Dist (ft)	Ground Dist (ft)	Ground Dist (ft)	Ground Dist (ft)
Lat	Long	t=0	East	East	North	East
40.8498	72.4762	94391	58309	58131	74297	58220
40.7979	72.6326	57380	15048	15013	55377	15030
40.8477	72.5031	89368	50868	50714	73532	50791
41.0615	73.4344	255769	-206737	-205445	151475	-206091
40.8644	72.4114	110145	76234	75983	79620	76109
40.91	72.6439	96977	11922	11875	96244	11898
40.4868	73.8607	330181	-324654	-325427	58038	-325041
40.7909	72.7532	55902	-18312	-18272	52825	-18292
40.8361	72.4966	86998	52666	52516	69303	52591
40.8528	72.4114	107132	76234	75997	75391	76115
40.9168	72.6621	98962	6888	6860	98723	6874
?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.7971	72.6547	55803	8934	8914	55085	8924
?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.8255	72.6454	66440	11507	11476	65439	11491
40.7134	73.0144	93792	-90562	-90470	24571	-90516
40.7671	72.9964	96230	-85583	-85427	44148	-85505
40.9435	72.8621	118730	-48420	-48204	108457	-48312
40.7909	72.6587	53400	7828	7811	52825	7820
40.8011	72.8671	75320	-49817	-49701	56543	-49759
40.8555	72.5605	83986	34991	34881	76375	34936
40.7895	72.7893	59463	-28297	-28236	52314	-28267
40.7431	72.0287	185370	182092	181826	35399	181959
40.7655	72.7743	49799	-24148	-24105	43565	-24126
40.7905	72.6609	53170	7220	7204	52679	7212
40.7971	72.6547	55803	8934	8914	55085	8924
40.8664	72.4509	103474	65307	65091	80349	65199
40.7375	72.8512	56327	-45419	-45357	33357	-45388
40.7361	72.8571	57356	-47051	-46988	32847	-47019
40.8507	72.8598	88581	-47798	-47651	74625	-47725
40.738	72.847	55506	-44257	-44196	33540	-44227
40.7488	72.705	37806	-4979	-4971	37477	-4975
?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

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000814

Recorder Down t=0					Witness Location		Ground	Ground	Ground	Ground	Ground
							Dist (ft)	Dist (ft)	Dist (ft)	Dist (ft)	Dist (ft)
Lat	Long	Alt(ft)		Witness Name	Lat	Long	t=0	East	East	North	East
40.65	72.69	13820	0.017	199.	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017	200.	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017	201.	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.65	72.69	13820	0.017		?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

C01147297

000815

	Recorder Down t=0			Apex t=15 sec			Right Wing Fail t=42			
Witness name	Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)	
1.	**40.646**	**72.687**	**13820**	**40.6522**	**72.664**	**16800**	**40.6661**	**72.6315**	**6000**	**0.017453**
2.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
3.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
4.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
5.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
6.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
7.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
8.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
9.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
10.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
11.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
12.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
13.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
14.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
15.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
16.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
17.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
18.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
19.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
20.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
21.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
22.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
23.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
24.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
25.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
26.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
27.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
28.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
29.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
30.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
31.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
32.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
33.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453

C01147297

000816

				Ground	Ground	Ground	Az (deg)	Az (deg)	Az (deg)	
	Witness Location		Witness	Dist (ft)	Dist (ft)	Dist (ft)	[1]	[2]	[3]	Closest Az
Witness name	Latitude	Longitude	Azimuth	t=0	t=15	t=42	t=0	t=15	t=42	(deg)
67.	40.7669	72.7539	?	47796	48638	49943	157.22	149.25	137.33	#VALUE!
68.	40.797	72.8313	?	67970	70165	72965	144.04	138.74	130.78	#VALUE!
69.	40.7431	73.0287	?	100864	106109	113305	110.43	108.08	104.21	#VALUE!
70.	40.7669	72.7539	?	47796	48638	49943	157.22	149.25	137.33	#VALUE!
71.	40.7535	73.1828	?	142526	148062	155645	105.80	104.27	101.63	#VALUE!
72.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
73.	40.7624	72.7762	?	49076	50749	53210	149.82	142.30	131.24	#VALUE!
74.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
75.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
76.	40.8045	72.7499	?	60339	60381	60129	163.24	156.83	147.01	#VALUE!
77.	40.7747	72.815	?	58758	61118	64328	142.95	136.90	127.93	#VALUE!
78.	40.7807	72.8542	?	67425	70403	74373	136.69	131.65	124.10	#VALUE!
79.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
80.	40.8282	72.7621	?	69587	69650	69234	162.63	157.07	148.56	#VALUE!
81	40.796	72.6705	?	54874	52454	48566	184.77	178.04	167.17	#VALUE!
82	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
83	40.623	73.2595	?	158608	165085	174423	86.78	86.11	84.63	#VALUE!
84	40.7998	72.6454	?	57235	54054	48893	191.60	185.46	175.49	#VALUE!
85	40.7822	72.7369	?	51532	51496	51375	164.46	156.95	145.44	#VALUE!
86	40.8244	72.6664	?	65286	62781	58509	185.01	179.39	170.51	#VALUE!
87	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
88	40.6167	72.7097	?	12391	18093	28148	30.45	44.32	50.20	#VALUE!
89	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
90	40.603	72.6508	?	18603	18304	23615	327.43	348.49	13.06	#VALUE!
91	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
92	40.7022	72.773	?	31388	35220	41272	130.72	121.13	108.55	#VALUE!
93	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
94	40.7134	73.0144	?	93792	99407	107240	105.08	102.86	99.13	#VALUE!
95	40.7303	72.8725	?	59783	64283	70603	120.87	116.22	109.28	#VALUE!
96	40.7661	72.7486	?	46977	47653	48744	158.73	150.59	138.37	#VALUE!
97	41.0833	73.3956	?	252152	255694	259802	128.98	127.69	125.58	#VALUE!
98	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
99	41.254	72.4417	?	231715	227770	220602	197.03	195.66	193.76	#VALUE!

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0008817

Witness name	Witness Location		Witness	Ground Dist (ft)	Ground Dist (ft)	Ground Dist (ft)	Az (deg)	Az (deg)	Az (deg)	
	Latitude	Longitude	Azimuth	t=0	t=15	t=42	[1] t=0	[2] t=15	[3] t=42	Closest Az (deg)
100.	41.2227	73.0566	?	233587	234406	234258	154.04	152.40	149.88	#VALUE!
101.	41.2227	73.0566	?	233587	234406	234258	154.04	152.40	149.88	#VALUE!
102.	41.2672	72.6526	?	226663	224226	219214	182.41	180.81	178.47	#VALUE!
103.	41.0678	73.3748	?	244155	247717	251869	128.81	127.47	125.31	#VALUE!
104.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
105.	40.7632	72.7723	?	48798	50331	52600	151.08	143.48	132.25	#VALUE!
106.	40.6167	72.7097	?	12391	18093	28148	30.45	44.32	50.20	#VALUE!
107.	40.8752	72.5084	?	97026	91952	83463	210.61	207.91	204.07	#VALUE!
108.	40.7807	72.8542	?	67425	70403	74373	136.69	131.65	124.10	#VALUE!
109.	40.7883	72.6687	?	52123	49634	45719	185.57	178.50	167.00	#VALUE!
110.	40.8383	72.4754	?	91272	85536	76154	219.89	217.58	214.53	#VALUE!
111.	40.7961	72.9032	?	81010	84378	88769	132.42	128.36	122.18	#VALUE!
112.	40.8009	72.7565	?	59646	59932	60061	161.20	154.73	144.86	#VALUE!
113.	40.8009	72.7565	?	59646	59932	60061	161.20	154.73	144.86	#VALUE!
114.	40.7835	72.6847	?	50131	48207	45253	180.73	173.18	161.03	#VALUE!
115.	40.7835	72.6847	?	50131	48207	45253	180.73	173.18	161.03	#VALUE!
116.	40.7835	72.6847	?	50131	48207	45253	180.73	173.18	161.03	#VALUE!
117.	40.6627	73.3696	?	188888	195179	204112	91.62	90.89	89.41	#VALUE!
118.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
119.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
120.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
121.	40.7961	72.9032	?	81010	84378	88769	132.42	128.36	122.18	#VALUE!
122.	40.6491	73.4577	?	213180	219532	228578	90.05	89.45	88.18	#VALUE!
123.	40.752	72.9336	?	78350	82919	89165	119.47	115.94	110.46	#VALUE!
124.	40.752	72.9336	?	78350	82919	89165	119.47	115.94	110.46	#VALUE!
125.	40.7632	72.7723	?	48798	50331	52600	151.08	143.48	132.25	#VALUE!
126.	40.7667	72.7465	?	46974	47562	48526	159.49	151.33	139.06	#VALUE!
127.	40.7687	72.7527	?	48276	49037	50205	157.89	149.98	138.12	#VALUE!
128.	40.8125	72.6876	?	60699	58802	55576	179.84	173.63	163.79	#VALUE!
129.	40.7424	72.8314	?	53180	56764	61853	131.32	125.35	116.66	#VALUE!
130.	40.7252	72.8868	?	62325	67093	73782	117.53	113.30	106.90	#VALUE!
131.	40.735	72.8602	?	57835	62067	68017	124.07	119.04	111.60	#VALUE!
132.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

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000818

Witness name	Witness Location Latitude	Longitude	Witness Azimuth	Ground Dist (ft) t=0	Ground Dist (ft) t=15	Ground Dist (ft) t=42	Az (deg) [1] t=0	Az (deg) [2] t=15	Az (deg) [3] t=42	Closest Az (deg)
133.	40.8196	72.5635	?	71898	67045	59028	208.37	204.49	198.58	#VALUE!
134.	40.767	72.7539	?	47830	48670	49969	157.24	149.28	137.36	#VALUE!
135.	40.7368	72.8542	?	56849	60952	66728	125.56	120.34	112.65	#VALUE!
136.	40.7894	72.664	?	52663	50018	45838	186.94	0.00	168.69	#VALUE!
137.	40.7355	72.86	?	57892	62107	68033	124.25	119.21	111.76	#VALUE!
138.	40.6784	73.6758	?	273698	279954	288783	92.15	91.63	90.55	#VALUE!
139.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
140.	40.767	73.003	?	97838	102605	109043	116.70	113.96	109.59	#VALUE!
141.	40.8196	72.5635	?	71898	67045	59028	208.37	204.49	198.58	#VALUE!
142.	40.7665	72.7552	?	47802	48698	50080	156.76	148.80	136.92	#VALUE!
143.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
144.	40.7626	72.7755	?	49042	50689	53113	150.06	142.53	131.43	#VALUE!
145.	40.8313	72.7548	?	70101	69944	69186	164.48	158.96	150.47	#VALUE!
146.	40.9581	72.6208	?	115236	112154	106492	189.14	186.12	181.59	#VALUE!
147.	40.737	72.8524	?	56488	60560	66298	125.91	120.63	112.87	#VALUE!
148.	40.7909	72.661	?	53311	50571	46221	187.75	180.94	169.83	#VALUE!
149.	40.7228	73.0744	?	110696	116333	124154	104.52	102.65	99.44	#VALUE!
150.	40.7823	72.6889	?	49692	47926	45233	179.39	171.74	159.46	#VALUE!
151.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
152.	40.7304	72.8746	?	60300	64820	71163	120.62	116.02	109.15	#VALUE!
153.	40.7399	73.0314	?	101165	106464	113749	109.67	107.36	103.55	#VALUE!
154.	40.7387	73.0312	?	100966	106282	113594	109.44	107.14	103.34	#VALUE!
155.	40.7851	72.6829	?	50723	48731	45648	181.28	173.84	161.86	#VALUE!
156.	40.8174	72.6137	?	65685	61807	55377	197.98	193.01	185.10	#VALUE!
157.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
158.	40.6419	72.2306	?	126257	119939	111230	270.83	271.94	274.68	#VALUE!
159.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
160.	40.7961	72.9032	?	81010	84378	88769	132.42	128.36	122.18	#VALUE!
161.	40.7664	72.754	?	47639	48496	49827	157.11	149.12	137.17	#VALUE!
162.	40.785	72.7977	?	59190	60898	63145	148.85	142.61	133.30	#VALUE!
163.	40.785	72.7977	?	59190	60898	63145	148.85	142.61	133.30	#VALUE!
164.	40.7434	72.8691	?	61598	65719	71456	125.14	120.32	113.15	#VALUE!
165.	40.7953	72.8073	?	63776	65491	67655	148.55	142.76	134.07	#VALUE!

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000819

Witness name	Witness Location		Witness	Ground Dist (ft)	Ground Dist (ft)	Ground Dist (ft)	Az (deg)	Az (deg)	Az (deg)	
	Latitude	Longitude	Azimuth	t=0	t=15	t=42	[1] t=0	[2] t=15	[3] t=42	Closest Az (deg)
166.	40.8498	72.4762	?	94391	88766	79524	218.15	215.81	212.68	#VALUE!
167.	40.7979	72.6326	?	57380	53820	48050	195.20	189.29	179.64	#VALUE!
168.	40.8477	72.5031	?	89368	83990	75101	214.69	212.00	208.21	#VALUE!
169.	41.0615	73.4344	?	255769	259593	264157	126.07	124.83	122.81	#VALUE!
170.	40.8644	72.4114	?	110145	104164	94443	223.80	222.12	220.12	#VALUE!
171.	40.91	72.6439	?	96977	94147	88982	187.06	183.39	177.79	#VALUE!
172.	40.4868	73.8607	?	330181	336836	346579	79.49	79.30	78.73	#VALUE!
173.	40.7909	72.7532	?	55902	56251	56572	160.88	153.99	143.50	#VALUE!
174.	40.8361	72.4966	?	86998	81440	72311	217.26	214.65	211.06	#VALUE!
175.	40.8528	72.4114	?	107132	101067	91250	225.36	223.73	221.84	#VALUE!
176.	40.9168	72.6621	?	98962	96464	91785	183.99	180.31	174.71	#VALUE!
177.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
178.	40.7971	72.6547	?	55803	52887	48185	189.21	182.79	172.35	#VALUE!
179.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
180.	40.8255	72.6454	?	66440	63387	58238	189.97	184.66	176.22	#VALUE!
181.	40.7134	73.0144	?	93792	99407	107240	105.08	102.86	99.13	#VALUE!
182.	40.7671	72.9964	?	96230	100957	107341	117.21	114.41	109.94	#VALUE!
183.	40.9435	72.86205	?	118730	119437	119476	155.93	152.70	147.75	#VALUE!
184.	40.7909	72.6587	?	53400	50586	46113	188.43	181.66	170.61	#VALUE!
185.	40.8011	72.8671	?	75320	78071	81597	138.59	133.98	127.02	#VALUE!
186.	40.8555	72.5605	?	83986	79436	71777	204.62	201.12	195.87	#VALUE!
187.	40.7895	72.7893	?	59463	60860	62645	151.58	145.29	135.85	#VALUE!
188.	40.7431	72.0287	?	185370	178693	168942	259.21	259.52	260.63	#VALUE!
189.	40.7655	72.7743	?	49799	51334	53573	150.99	143.54	132.52	#VALUE!
190.	40.7905	72.6609	?	53170	50426	46073	187.80	180.97	169.84	#VALUE!
191.	40.7971	72.6547	?	55803	52887	48185	189.21	182.79	172.35	#VALUE!
192.	40.8664	72.4509	?	103474	97778	88423	219.13	217.07	214.39	#VALUE!
193.	40.7375	72.8512	?	56327	60369	66064	126.26	120.94	113.13	#VALUE!
194.	40.7361	72.8571	?	57356	61517	67372	124.88	119.75	112.18	#VALUE!
195.	40.8507	72.8598	?	88581	90337	92214	147.34	143.17	136.79	#VALUE!
196	40.738	72.847	?	55506	59472	65072	127.12	121.67	113.68	#VALUE!
197	40.7488	72.705	?	37806	36995	36353	172.43	162.15	146.01	#VALUE!
198	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

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000820

Witness name	Witness Location Latitude	Witness Location Longitude	Witness Azimuth	Ground Dist (ft) t=0	Ground Dist (ft) t=15	Ground Dist (ft) t=42	Az (deg) [1] t=0	Az (deg) [2] t=15	Az (deg) [3] t=42	Closest Az (deg)
199.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**#VALUE!**
200.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**#VALUE!**
201.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**#VALUE!**
202.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**#VALUE!**
203.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**#VALUE!**
204.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**#VALUE!**
205.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**#VALUE!**
206.	**40.7669**	**72.7539**	?	47796	48638	49943	157.22	149.25	137.33	**#VALUE!**
207.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**#VALUE!**
208.	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**#VALUE!**
	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**#VALUE!**
	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**#VALUE!**
	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**#VALUE!**
	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**#VALUE!**
	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**#VALUE!**
	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**#VALUE!**
	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**#VALUE!**
	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**#VALUE!**
	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**#VALUE!**
	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**#VALUE!**
	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**#VALUE!**
	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**#VALUE!**
	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**#VALUE!**
	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**#VALUE!**
	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**#VALUE!**
	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**#VALUE!**
	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**#VALUE!**
	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**#VALUE!**
	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**#VALUE!**
	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**#VALUE!**
	?	?	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**#VALUE!**

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000821

Witness name	Elevation (deg) t=0	Elevation (deg) t=15	Elevation (deg) t=42	Explos. Delta Time t=0 to 15	Explos. Delta Time t=0 to 42	Explos. Delta Time t=15 to 42	Time For Sound t=0	Time For Sound t=15	Time For Sound t=38.5
1.	13.23	16.96	6.96	12.75	31.36	18.61	55.44057	52.15338	45.69082
2.	16.13	19.06	6.85	16.83	41.85	25.03	45.68765	46.58949	46.44664
3.	13.72	15.50	5.18	19.52	48.61	29.08	53.50734	56.90149	61.30768
4.	6.81	7.88	2.66	21.17	52.23	31.06	106.99	110.96	119.5485
5.	6.06	7.02	2.36	21.79	53.69	31.90	120.198	124.5119	134.5025
6.	4.34	5.44	2.06	10.73	25.17	14.43	167.7498	160.3019	153.9112
7.	16.12	19.04	6.85	16.82	41.85	25.02	45.7173	46.61631	46.47122
8.	13.71	15.45	5.15	19.68	49.00	29.32	53.53491	57.0828	61.73467
9.	13.18	14.85	4.94	19.88	49.49	29.61	55.64022	59.34031	64.38395
10.	12.31	14.48	5.10	17.53	43.62	26.10	59.52127	60.84014	62.35777
11.	12.31	14.48	5.10	17.53	43.62	26.10	59.52127	60.84014	62.35777
12.	13.58	17.33	7.06	13.06	32.15	19.10	54.0351	51.07635	45.06398
13.	13.05	15.66	5.70	16.25	40.43	24.18	56.22212	56.353	55.73444
14.	14.72	18.52	7.39	13.89	34.29	20.40	49.94936	47.88518	43.07835
15.	14.85	17.90	6.61	15.96	39.68	23.72	49.51461	49.49114	48.12938
16.	13.72	15.50	5.18	19.52	48.61	29.08	53.50734	56.90149	61.30768
17.	13.72	15.50	5.18	19.52	48.61	29.08	53.50734	56.90149	61.30768
18.	5.06	6.05	2.13	18.25	43.89	25.64	144	144.3825	148.7882
19.	3.07	3.80	1.41	11.69	25.69	14.00	237.0818	229.2241	225.1572
20.	9.76	12.54	5.08	11.62	28.58	16.96	74.82514	70.05059	62.62025
21.	14.74	17.59	6.39	16.45	40.93	24.48	49.86495	50.31826	49.76836
22.	10.03	11.98	4.28	16.89	41.89	25.01	72.83962	73.27098	74.1775
23.	3.49	4.12	1.42	22.35	53.20	30.85	208.4226	211.572	223.9854
24.	12.83	15.95	6.16	14.30	35.44	21.14	57.16515	55.36838	51.61459
25.	14.74	16.79	5.70	18.81	46.84	28.02	49.89057	52.65887	55.81514
26.	18.03	20.83	7.29	17.62	43.79	26.17	41.00676	42.77812	43.64959
27.	4.17	4.90	1.67	22.26	53.86	31.60	174.3439	178.0689	189.9023
28.	11.43	14.53	5.81	12.83	31.64	18.82	64.01733	60.64042	54.72588
29.	13.67	15.41	5.14	19.66	48.94	29.28	53.70444	57.22672	61.85009
30.	8.90	11.46	4.64	11.03	27.12	16.09	82.06023	76.5663	68.51486
31.	7.15	8.24	2.77	21.20	52.40	31.20	101.9791	106.0745	114.6096
32.	15.43	19.16	7.48	14.57	36.06	21.49	47.69092	46.34043	42.57846
33.	13.23	15.36	5.33	18.10	45.06	26.97	55.46946	57.42774	59.69626

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000822

Witness name	Elevation (deg) t=0	Elevation (deg) t=15	Elevation (deg) t=42	Explos. Delta Time t=0 to 15	Explos. Delta Time t=0 to 42	Explos. Delta Time t=15 to 42	Time For Sound t=0	Time For Sound t=15	Time For Sound t=38.5
34.	5.05	6.04	2.13	18.25	43.90	25.65	144.0796	144.4647	148.8783
35.	8.86	11.38	4.58	11.20	27.55	16.34	82.41309	77.08679	69.30955
36.	15.97	18.91	6.82	16.75	41.67	24.92	46.11123	46.93069	46.68749
37.	13.72	15.50	5.18	19.52	48.61	29.08	53.50734	56.90149	61.30768
38.	5.10	6.45	2.48	10.28	24.72	14.44	142.7335	135.3265	127.9422
39.	16.37	19.62	7.22	16.19	40.23	24.04	45.01567	45.30678	44.10423
40.	14.42	18.29	7.40	13.46	33.19	19.72	50.97707	48.47911	43.00133
41.	13.90	17.52	6.98	13.70	33.84	20.14	52.8369	50.53345	45.56249
42.	12.21	13.81	4.60	19.96	49.70	29.74	60.00171	63.70192	69.04588
43.	13.80	17.62	7.21	13.04	32.10	19.06	53.19743	50.24193	44.15953
44.	15.76	18.35	6.44	17.56	43.69	26.14	46.71872	48.31487	49.37405
45.	14.66	19.39	8.62	11.59	28.11	16.52	50.13598	45.81541	36.96504
46.	7.17	8.64	3.11	16.52	40.49	23.97	101.734	101.242	102.2132
47.	10.03	11.49	3.86	20.06	49.85	29.79	72.83508	76.38083	82.29155
48.	14.08	17.94	7.31	13.21	32.53	19.32	52.15516	49.38522	43.53496
49.	8.61	11.11	4.50	10.72	26.39	15.67	84.76828	78.92245	70.53561
50.	8.61	11.11	4.50	10.72	26.39	15.67	84.76828	78.92245	70.53561
51.	15.66	19.39	7.53	14.72	36.44	21.72	47.01112	45.81856	42.27004
52.	12.15	15.35	6.09	13.34	32.95	19.61	60.28141	57.47764	52.25013
53.	6.91	8.00	2.70	20.98	51.75	30.77	105.4692	109.2815	117.5045
54.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
55.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
56.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
57.	14.24	18.10	7.36	13.33	32.83	19.50	51.60283	48.95676	43.27469
58.	13.54	17.10	6.82	13.57	33.52	19.95	54.19753	51.74369	46.62726
59.	11.95	14.98	5.86	13.73	33.97	20.24	61.28104	58.84058	54.30439
60.	8.76	10.56	3.81	16.40	40.52	24.12	83.28768	83.03477	83.42741
61.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
62.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
63.	16.13	19.06	6.85	16.83	41.85	25.03	45.68765	46.58949	46.44664
64.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
65.	12.18	15.38	6.10	13.35	32.99	19.64	60.12869	57.34168	52.13096
66.	12.75	16.40	6.78	12.41	30.50	18.09	57.52289	53.86213	46.93344

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000823

	Elevation (deg)	Elevation (deg)	Elevation (deg)	Explos. Delta Time	Explos. Delta Time	Explos. Delta Time	Time For Sound	Time For Sound	Time For Sound
Witness name	t=0	t=15	t=42	t=0 to 15	t=0 to 42	t=15 to 42	t=0	t=15	t=38.5
67.	16.13	19.06	6.85	16.83	41.85	25.03	45.68765	46.58949	46.44664
68.	11.49	13.47	4.70	17.93	44.59	26.67	63.69215	65.32185	67.60011
69.	7.80	9.00	3.03	20.71	51.24	30.53	93.48636	97.26608	104.768
70.	16.13	19.06	6.85	16.83	41.85	25.03	45.68765	46.58949	46.44664
71.	5.54	6.47	2.21	21.10	51.53	30.43	131.4918	134.9135	143.8231
72.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
73.	15.73	18.32	6.43	17.54	43.66	26.12	46.81777	48.39942	49.44305
74.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
75.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
76.	12.90	15.55	5.70	16.03	39.87	23.84	56.84281	56.7452	55.7961
77.	13.24	15.37	5.33	18.10	45.07	26.97	55.42858	57.38803	59.65564
78.	11.58	13.42	4.61	18.63	46.35	27.72	63.20145	65.5319	68.89605
79.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
80.	11.23	13.56	4.95	16.01	39.77	23.76	65.14786	64.86845	64.16734
81.	14.14	17.76	7.04	13.90	34.34	20.45	51.96257	49.86795	45.18532
82.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
83.	4.98	5.81	1.97	22.02	53.82	31.79	146.1971	150.2377	161.1509
84.	13.57	17.27	7.00	13.20	32.53	19.33	54.06805	51.24892	45.48427
85.	15.01	18.07	6.66	16.02	39.84	23.82	48.9927	49.04215	47.76054
86.	11.95	14.98	5.86	13.73	33.97	20.24	61.27887	58.84083	54.30856
87.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
88.	48.12	42.88	12.03	20.75	51.01	30.26	17.04462	22.35378	26.57438
89.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
90.	36.61	42.55	14.26	16.66	42.78	26.12	21.28062	22.49466	22.49823
91.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
92.	23.76	25.50	8.27	19.54	48.27	28.73	31.49255	35.3298	38.50988
93.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
94.	8.38	9.59	3.20	21.03	52.19	31.16	87.05654	91.27763	99.17574
95.	13.02	14.65	4.86	20.01	49.81	29.80	56.34466	60.15593	65.42691
96.	16.39	19.42	7.02	16.69	41.50	24.81	44.96551	45.74677	45.3483
97.	3.14	3.76	1.32	19.71	45.39	25.68	231.8924	232.0009	239.9555
98.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
99.	3.41	4.22	1.56	12.73	28.65	15.92	213.1555	206.78	203.7709

C01147297

000824

Witness name	Elevation (deg) t=0	Elevation (deg) t=15	Elevation (deg) t=42	Explos. Delta Time t=0 to 15	Explos. Delta Time t=0 to 42	Explos. Delta Time t=15 to 42	Time For Sound t=0	Time For Sound t=15	Time For Sound t=38.5
100.	3.39	4.10	1.47	17.12	39.29	22.17	214.8718	212.7725	216.3753
101.	3.39	4.10	1.47	17.12	39.29	22.17	214.8718	212.7725	216.3753
102.	3.49	4.28	1.57	14.10	32.02	17.93	208.5248	203.5807	202.4894
103.	3.24	3.88	1.36	19.70	45.54	25.85	224.5603	224.7952	232.6317
104.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
105.	15.81	18.46	6.51	17.42	43.36	25.94	46.57264	48.04099	48.884
106.	48.12	42.88	12.03	20.75	51.01	30.26	17.04462	22.35378	26.57438
107.	8.11	10.35	4.11	11.31	27.77	16.45	89.99548	84.62999	77.2652
108.	11.58	13.42	4.61	18.63	46.35	27.72	63.20145	65.5319	68.89605
109.	14.85	18.70	7.48	13.87	34.23	20.36	49.51677	47.44207	42.57743
110.	8.61	11.11	4.50	10.72	26.39	15.67	84.76828	78.92245	70.53561
111.	9.68	11.26	3.87	18.98	47.09	28.11	75.46433	77.89407	82.15266
112.	13.05	15.66	5.70	16.25	40.43	24.18	56.22212	56.353	55.73444
113.	13.05	15.66	5.70	16.25	40.43	24.18	56.22212	56.353	55.73444
114.	15.41	19.21	7.55	14.39	35.58	21.19	47.75122	46.22068	42.15041
115.	15.41	19.21	7.55	14.39	35.58	21.19	47.75122	46.22068	42.15041
116.	15.41	19.21	7.55	14.39	35.58	21.19	47.75122	46.22068	42.15041
117.	4.18	4.92	1.68	21.97	52.97	30.99	173.9141	177.366	188.5507
118.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
119.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
120.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
121.	9.68	11.26	3.87	18.98	47.09	28.11	75.46433	77.89407	82.15266
122.	3.71	4.38	1.50	22.13	52.85	30.72	196.1687	199.3423	211.1328
123.	10.00	11.45	3.85	20.06	49.85	29.79	73.05767	76.59957	82.51747
124.	10.00	11.45	3.85	20.06	49.85	29.79	73.05767	76.59957	82.51747
125.	15.81	18.46	6.51	17.42	43.36	25.94	46.57264	48.04099	48.884
126.	16.39	19.45	7.05	16.61	41.31	24.69	44.96342	45.66974	45.14831
127.	15.97	18.91	6.82	16.75	41.67	24.92	46.11123	46.93069	46.68749
128.	12.83	15.95	6.16	14.30	35.44	21.14	57.16515	55.36838	51.61459
129.	14.57	16.49	5.54	19.20	47.81	28.60	50.45621	53.59671	57.38104
130.	12.50	14.06	4.65	20.24	50.40	30.16	58.62165	62.62047	68.35203
131.	13.44	15.15	5.04	19.77	49.22	29.45	54.60378	58.21659	63.04788
132.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

C01147297

000825

	Elevation (deg)	Elevation (deg)	Elevation (deg)	Explos. Delta Time	Explos. Delta Time	Explos. Delta Time	Time For Sound	Time For Sound	Time For Sound
Witness name	t=0	t=15	t=42	t=0 to 15	t=0 to 42	t=15 to 42	t=0	t=15	t=38.5
133.	10.88	14.07	5.80	11.59	28.49	16.90	67.23034	62.57849	54.78484
134.	16.12	19.04	6.85	16.82	41.85	25.02	45.7173	46.61631	46.47122
135.	13.66	15.41	5.14	19.66	48.94	29.28	53.72335	57.24279	61.86299
136.	14.70	18.57	7.46	13.72	33.86	20.14	49.99627	47.77153	42.68629
137.	13.43	15.14	5.04	19.75	49.18	29.43	54.65436	58.25194	63.06259
138.	2.89	3.43	1.19	22.31	51.87	29.55	251.6503	253.9226	266.7082
139.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
140.	8.04	9.30	3.15	20.27	50.14	29.87	90.73373	94.13382	100.8385
141.	10.88	14.07	5.80	11.59	28.49	16.90	67.23034	62.57849	54.78484
142.	16.13	19.03	6.83	16.87	41.97	25.10	45.69302	46.64056	46.57256
143.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
144.	15.74	18.34	6.45	17.52	43.61	26.09	46.78796	48.34775	49.35407
145.	11.15	13.51	4.96	15.81	39.26	23.46	65.61086	65.12738	64.12355
146.	6.84	8.52	3.22	13.14	31.99	18.86	106.5769	102.6759	98.48693
147.	13.75	15.50	5.17	19.63	48.87	29.24	53.40127	56.90115	61.46729
148.	14.53	18.38	7.40	13.63	33.63	19.99	50.57226	48.24696	43.037
149.	7.12	8.22	2.77	21.09	52.10	31.01	102.4383	106.4187	114.7728
150.	15.54	19.32	7.56	14.53	35.95	21.42	47.36296	45.98004	42.13227
151.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
152.	12.91	14.53	4.82	20.02	49.85	29.83	56.80752	60.6264	65.94198
153.	7.78	8.97	3.02	20.76	51.37	30.61	93.75987	97.58389	105.1774
154.	7.79	8.98	3.02	20.78	51.41	30.63	93.57929	97.4207	105.0341
155.	15.24	19.02	7.49	14.32	35.41	21.09	48.27544	46.66843	42.51187
156.	11.88	15.21	6.18	12.50	30.79	18.29	61.63715	57.99	51.43187
157.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
158.	6.25	7.97	3.09	10.20	26.22	16.02	116.6311	109.6516	102.8545
159.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
160.	9.68	11.26	3.87	18.98	47.09	28.11	75.46433	77.89407	82.15266
161.	16.18	19.11	6.87	16.84	41.89	25.05	45.54892	46.46764	46.34111
162.	13.14	15.42	5.43	17.52	43.61	26.10	55.81488	57.1962	58.56845
163.	13.14	15.42	5.43	17.52	43.61	26.10	55.81488	57.1962	58.56845
164.	12.65	14.34	4.80	19.66	48.95	29.29	57.96997	61.41466	66.21189
165.	12.23	14.39	5.07	17.51	43.57	26.06	59.9226	61.21456	62.71509

C01147297

000826

	Recorder Down t=0			Apex t=15 sec			Right Wing Fail t=42			
Witness name	Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)	
34.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
35.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
36.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
37.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
38.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
39.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
40.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
41.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
42.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
43.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
44.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
45.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
46.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
47.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
48.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
49.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
50.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
51.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
52.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
53.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
54.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
55.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
56.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
57.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
58.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
59.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
60.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
61.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
62.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
63.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
64.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
65.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
66.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453

C01147297

0000827

Witness name	Elevation (deg) t=0	Elevation (deg) t=15	Elevation (deg) t=42	Explos. Delta Time t=0 to 15	Explos. Delta Time t=0 to 42	Explos. Delta Time t=15 to 42	Time For Sound t=0	Time For Sound t=15	Time For Sound t=38.5
166.	8.33	10.72	4.31	10.82	26.60	15.79	87.60088	81.79404	73.63814
167.	13.54	17.34	7.12	12.86	31.64	18.78	54.19744	51.0469	44.71203
168.	8.79	11.31	4.57	11.05	27.17	16.12	83.03997	77.5495	69.56664
169.	3.09	3.70	1.30	19.99	46.02	26.03	235.209	235.5237	243.9755
170.	7.15	9.16	3.64	10.49	25.74	15.26	101.9359	95.52725	87.38084
171.	8.11	10.12	3.86	13.35	32.80	19.44	89.95069	86.58614	82.34912
172.	2.40	2.86	0.99	22.95	52.37	29.43	303.4624	305.3458	320.0655
173.	13.89	16.63	6.05	16.33	40.63	24.30	52.87877	53.15178	52.52945
174.	9.03	11.66	4.74	10.89	26.80	15.91	80.89005	75.28734	66.99883
175.	7.35	9.44	3.76	10.41	25.60	15.19	99.19188	92.7603	84.43876
176.	7.95	9.88	3.74	13.66	33.52	19.87	91.75589	88.65188	84.93121
177.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
178.	13.91	17.62	7.10	13.45	33.17	19.72	52.79072	50.2412	44.83621
179.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
180.	11.75	14.84	5.88	13.23	32.69	19.46	62.31585	59.37108	54.05892
181.	8.38	9.59	3.20	21.03	52.19	31.16	87.05654	91.27763	99.17574
182.	8.17	9.45	3.20	20.23	50.06	29.83	89.27201	92.66214	99.26882
183.	6.64	8.01	2.87	16.61	40.55	23.94	109.7631	109.2009	110.4588
184.	14.51	18.37	7.41	13.57	33.45	19.89	50.65169	48.25934	42.9383
185.	10.40	12.14	4.21	18.42	45.76	27.34	70.31918	72.30278	75.54671
186.	9.34	11.94	4.78	11.81	29.05	17.24	78.15965	73.5108	66.50733
187.	13.08	15.43	5.47	17.24	42.92	25.68	56.05825	57.16293	58.1084
188.	4.26	5.37	2.03	10.03	24.36	14.33	170.693	162.4998	156.0926
189.	15.51	18.12	6.39	17.42	43.35	25.93	47.45774	48.90281	49.77686
190.	14.57	18.43	7.42	13.63	33.62	19.99	50.44716	48.1221	42.90111
191.	13.91	17.62	7.10	13.45	33.17	19.72	52.79072	50.2412	44.83621
192.	7.61	9.75	3.88	10.75	26.38	15.63	95.86142	89.82446	81.83439
193.	13.79	15.55	5.19	19.60	48.80	29.20	53.2581	56.73414	61.25221
194.	13.55	15.27	5.09	19.71	49.06	29.36	54.1761	57.7367	62.45457
195.	8.87	10.53	3.72	17.52	43.34	25.82	82.32562	83.19217	85.32702
196.	13.98	15.77	5.27	19.54	48.64	29.10	52.52586	55.95258	60.33979
197.	20.08	24.42	9.37	15.55	38.40	22.84	36.96268	36.78646	34.02117
198.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

C01147297

000828

		Elevation (deg)	Elevation (deg)	Elevation (deg)	Explos. Delta Time	Explos. Delta Time	Explos. Delta Time	Time For Sound	Time For Sound	Time For Sound
Witness name		t=0	t=15	t=42	t=0 to 15	t=0 to 42	t=15 to 42	t=0	t=15	t=38.5
199.		#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
200.		#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
201.		#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
202.		#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
203.		#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
204.		#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
205.		#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
206.		16.13	19.06	6.85	16.83	41.85	25.03	45.68765	46.58949	46.44664
207.		#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
208.		#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

C01147297

0008829

TWA800 @ t=-12			USAIR FLT217 @ t=-12			USAIR FLT217 @ t=0			Distance From Witness			
									TWA800	TWA800	FLT217	FLT217
Latitude	Longitude	Altitude	Latitude	Longitude	Altitude	Latitude	Longitude	Altitude	t=-12	t=0	t=-12	t=0
40.6397	**72.7144**	**13800**	**40.5953**	**72.7183**	**21695**	**40.6183**	**72.7097**	**21700**	63439	58772	78665	70294
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	47640	47796	63504	55534
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	52365	56607	64720	58932
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	108935	115690	114374	112522
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	122663	130164	124409	124536
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	188971	182156	201090	193878
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	47675	47830	63540	55570
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	52162	56638	64172	58575
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	54194	58995	65611	60348
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	61797	63328	76827	69468
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	61797	63328	76827	69468
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	61537	57198	76985	68564
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	59907	59646	75851	67813
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	56074	52610	71949	63466
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	52974	52120	69083	60873
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	52365	56607	64720	58932
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	52365	56607	64720	58932
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	153391	156206	166711	160488
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	263754	257812	277568	269703
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	86001	80304	100223	92162
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	52701	52515	68651	60607
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	77229	78109	92578	85010
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	218821	226551	218273	219707
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	63430	60699	79528	71060
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	49427	52544	63257	56620
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	41421	42464	56968	49238
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	181553	189357	180337	182084
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	72718	68331	88149	79736
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	52383	56828	64434	58815
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	94641	88289	107870	100165
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	103386	110192	108704	106903
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	52769	50063	68858	60388
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	56570	58804	71114	64061

C01147297

000830

TWA800 @ t=-12			USAIR FLT217 @ t=-12			USAIR FLT217 @ t=0			Distance From Witness			
									TWA800	TWA800	FLT217	FLT217
Latitude	Longitude	Altitude	Latitude	Longitude	Altitude	Latitude	Longitude	Altitude	t=-12	t=0	t=-12	t=0
40.6397	**72.7144**	**13800**	**40.5953**	**72.7183**	**21695**	**40.6183**	**72.7097**	**21700**	153473	156293	166786	160567
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	94813	88677	108406	100569
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	48205	48276	64095	56103
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	52365	56607	64720	58932
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	162124	154821	172787	166176
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	47766	47034	63868	55668
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	57707	53766	73375	64913
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	59450	55855	75280	66800
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	58878	63864	69838	64846
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	60638	56259	76060	67644
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	47755	48964	63136	55528
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	58997	52820	72600	64712
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	109335	109923	124746	117141
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	72878	78104	83051	78543
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	59298	55090	74822	66386
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	97981	91272	110494	103065
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	97981	91272	110494	103065
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	51844	49294	67961	59501
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	68018	64175	83751	75282
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	107516	114021	113844	111514
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	58557	54470	74149	65700
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	61088	57380	76873	68397
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	68633	65288	84572	76087
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	89303	89641	104905	97153
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	47640	47796	63504	55534
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	67834	64005	83573	75104
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	66118	61099	81061	72765

C01147297

000831

TWA800 @ t=-12			USAIR FLT217 @ t=-12			USAIR FLT217 @ t=0			Distance From Witness			
									TWA800	TWA800	FLT217	FLT217
Latitude	Longitude	Altitude	Latitude	Longitude	Altitude	Latitude	Longitude	Altitude	t=-12	t=0	t=-12	t=0
40.6397	**72.7144**	**13800**	**40.5953**	**72.7183**	**21695**	**40.6183**	**72.7097**	**21700**	47640	47796	63504	55534
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	65816	67970	80318	73303
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	94704	100864	102256	99237
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	47640	47796	63504	55534
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	135950	142526	141770	139765
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	47882	49076	63269	55656
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	60875	60339	76895	68784
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	56525	58758	71069	64016
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	64302	67425	77858	71416
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	69971	69587	85923	77879
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	58258	54874	74167	65682
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	150935	158608	151200	152147
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	61401	57235	76953	68512
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	52321	51532	68420	60222
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	68627	65286	84567	76082
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	8485	12391	7909	583
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	22107	18603	17827	17229
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	27959	31388	42208	35242
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	87188	93792	93478	91112
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	54783	59783	65831	60773
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	47040	46977	62981	54944
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	247845	252152	258743	253991
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	236203	231715	251609	243220

C01147297

0000832

TWA800 @ t=-12			USAIR FLT217 @ t=-12			USAIR FLT217 @ t=0			Distance From Witness			
									TWA800	TWA800	FLT217	FLT217
Latitude	Longitude	Altitude	Latitude	Longitude	Altitude	Latitude	Longitude	Altitude	t=-12	t=0	t=-12	t=0
40.6397	**72.7144**	**13800**	**40.5953**	**72.7183**	**21695**	**40.6183**	**72.7097**	**21700**	232498	233587	247394	240169
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	232498	233587	247394	240169
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	229393	226663	245539	237085
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	239829	244155	250708	245965
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	47782	48798	63268	55587
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	8485	12391	7909	583
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	102990	97026	116835	108915
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	64302	67425	77858	71416
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	55626	52123	71485	63003
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	97981	91272	110494	103065
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	77281	81010	89900	84030
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	59907	59646	75851	67813
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	59907	59646	75851	67813
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	53062	50131	69100	60620
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	53062	50131	69100	60620
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	53062	50131	69100	60620
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	181414	188888	182938	183265
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	77281	81010	89900	84030
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	205637	213180	206609	207246
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	73123	78350	83287	78784
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	73123	78350	83287	78784
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	47782	48798	63268	55587
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	47141	46974	63113	55049
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	48205	48276	64095	56103
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	63430	60699	79528	71060
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	49475	53180	62630	56382
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	56949	62325	67199	62584
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	53212	57835	64956	59510
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!

C01147297

000833

TWA800 @ t=-12			USAIR FLT217 @ t=-12			USAIR FLT217 @ t=0			Distance From Witness			
									TWA800	TWA800	FLT217	FLT217
Latitude	Longitude	Altitude	Latitude	Longitude	Altitude	Latitude	Longitude	Altitude	t=-12	t=0	t=-12	t=0
40.6397	**72.7144**	**13800**	**40.5953**	**72.7183**	**21695**	**40.6183**	**72.7097**	**21700**	77712	71898	91791	83770
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	47675	47830	63540	55570
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	52408	56849	64463	58842
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	56324	52663	72119	63642
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	53289	57892	65065	59602
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	266253	273698	267687	268118
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	92280	97838	101411	97527
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	77712	71898	91791	83770
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	47582	47802	63424	55472
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	47881	49042	63287	55662
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	70736	70101	86757	78645
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	118915	115236	134763	126284
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	52091	56488	64225	58559
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	57062	53311	72820	64346
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	104035	110696	109876	107798
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	52462	49692	68536	60064
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	55269	60300	66245	61228
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	94937	101165	102287	99377
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	94719	100966	102015	99133
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	53717	50723	69739	61258
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	70503	65685	85618	77279
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	133836	126257	134952	132834
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	77281	81010	89900	84030
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	47469	47639	63330	55363
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	57756	59190	72890	65458
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	57756	59190	72890	65458
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	57077	61598	68883	63419
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	62263	63776	77301	69938

C01147297

000834

TWA800 @ t=-12			USAIR FLT217 @ t=-12			USAIR FLT217 @ t=0			Distance From Witness			
Latitude	Longitude	Altitude	Latitude	Longitude	Altitude	Latitude	Longitude	Altitude	TWA800 t=-12	TWA800 t=0	FLT217 t=-12	FLT217 t=0
40.6397	**72.7144**	**13800**	**40.5953**	**72.7183**	**21695**	**40.6183**	**72.7097**	**21700**	100971	94391	113752	106223
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	61944	57380	77243	68855
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	95687	89368	108973	101249
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	251129	255769	261404	257012
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	117101	110145	128962	121812
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	100444	96977	116367	107883
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	322324	330181	320027	322404
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	56154	55902	72110	64061
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	93520	86998	106435	98847
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	114188	107132	125779	118737
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	102046	98962	118093	109612
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	59706	55803	75396	66932
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	70366	66440	86061	77598
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	87188	93792	93478	91112
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	90726	96230	100004	96036
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	118013	118730	133325	125793
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	57230	53400	72951	64482
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	72403	75320	86083	79581
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	89420	83986	103952	95793
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	58401	59463	73763	66176
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	193253	185370	197112	193692
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	48758	49799	64220	56556
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	56929	53170	72682	64210
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	59706	55803	75396	66932
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	110117	103474	122747	115285
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	51974	56327	64175	58471
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	52831	57356	64745	59204
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	86774	88581	101405	94326
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	51262	55506	63646	57838
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	39858	37806	56020	47593
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!

C01147297

0000835

TWA800 @ t=-12			USAIR FLT217 @ t=-12			USAIR FLT217 @ t=0			Distance From Witness			
Latitude	Longitude	Altitude	Latitude	Longitude	Altitude	Latitude	Longitude	Altitude	TWA800 t=-12	TWA800 t=0	FLT217 t=-12	FLT217 t=0
40.6397	**72.7144**	**13800**	**40.5953**	**72.7183**	**21695**	**40.6183**	**72.7097**	**21700**	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	47640	47796	63504	55534
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40.6397	72.7144	13800	40.5953	72.7183	21695	40.6183	72.7097	21700	#VALUE!	#VALUE!	#VALUE!	#VALUE!

C01147297

000836

	AT TIME= -12 SEC				AT TIME= 0 SEC			
	Azimuth	Elevation	Azimuth	Elevation	Azimuth	Elevation	Azimuth	Elevation
Witness Name	TWA800	TWA800	USA217	USA217	TWA800	TWA800	USA217	USA217
1.	202.24	12.27	197.79	15.42	196.23	13.23	198.86	17.16
2.	166.74	16.15	170.09	18.86	157.22	16.13	167.28	21.34
3.	134.25	14.76	144.55	18.53	127.20	13.72	138.79	20.21
4.	105.43	7.22	113.26	10.74	103.31	6.81	109.07	10.92
5.	92.16	6.42	99.62	9.89	91.00	6.06	95.72	9.88
6.	223.43	4.18	220.27	6.16	222.18	4.34	221.57	6.39
7.	166.75	16.14	170.09	18.85	157.24	16.12	167.28	21.33
8.	132.15	14.82	142.91	18.68	125.26	13.71	136.95	20.33
9.	128.97	14.29	140.02	18.30	122.59	13.18	133.95	19.78
10.	155.51	12.59	160.51	15.77	148.39	12.31	157.20	17.35
11.	155.51	12.59	160.51	15.77	148.39	12.31	157.20	17.35
12.	199.54	12.64	195.52	15.74	193.14	13.58	196.34	17.56
13.	168.79	12.97	171.16	15.96	161.20	13.05	168.99	17.74
14.	192.80	13.83	189.95	16.78	185.28	14.72	190.10	18.88
15.	173.58	14.60	175.08	17.43	164.99	14.85	173.19	19.62
16.	134.25	14.76	144.55	18.53	127.20	13.72	138.79	20.21
17.	134.25	14.76	144.55	18.53	127.20	13.72	138.79	20.21
18.	143.48	5.14	146.77	7.41	140.74	5.06	144.75	7.70
19.	212.65	3.00	210.87	4.47	211.50	3.07	211.53	4.60
20.	211.10	9.12	206.33	12.21	207.31	9.76	207.91	13.25
21	168.77	14.67	171.40	17.54	160.14	14.74	169.00	19.70
22.	159.60	10.13	163.09	13.19	153.79	10.03	160.61	14.32
23	85.42	3.61	89.67	5.68	84.98	3.49	87.48	5.64
24	186.71	12.27	185.35	15.26	179.84	12.83	184.94	16.98
25	144.05	15.60	152.67	18.93	135.86	14.74	147.61	20.97
26	160.94	18.43	166.25	20.85	150.20	18.03	162.47	23.78
27	82.72	4.35	87.83	6.86	82.30	4.17	85.20	6.80
28	199.47	10.75	195.97	13.83	194.10	11.43	196.72	15.22
29	132.41	14.76	143.09	18.61	125.53	13.67	137.17	20.25
30	218.06	8.30	212.77	11.37	215.09	8.90	214.73	12.22
31	104.76	7.60	113.03	11.29	102.58	7.15	108.62	11.47
32	187.23	14.66	185.54	17.49	178.92	15.43	185.07	19.77
33	150.50	13.71	156.92	16.97	142.95	13.23	152.92	18.71

C01147297

0008837

	Recorder Down t=0			Apex t=15 sec			Right Wing Fail t=42			
Witness name	Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)	
67.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
68.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
69.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
70.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
71.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
72.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
73.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
74.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
75.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
76.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
77.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
78.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
79.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
80.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
81.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
82.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
83.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
84.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
85.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
86.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
87.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
88.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
89.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
90.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
91.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
92.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
93.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
94.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
95.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
96.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
97.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
98.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
99.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453

C01147297

0000838

	AT TIME= -12 SEC				AT TIME= 0 SEC			
	Azimuth	Elevation	Azimuth	Elevation	Azimuth	Elevation	Azimuth	Elevation
Witness Name	TWA800	TWA800	USA217	USA217	TWA800	TWA800	USA217	USA217
34.	143.44	5.14	146.73	7.41	140.70	5.05	144.71	7.70
35.	215.58	8.28	210.61	11.32	212.45	8.86	212.39	12.18
36.	167.30	15.98	170.48	18.70	157.89	15.97	167.75	21.15
37.	134.25	14.76	144.55	18.53	127.20	13.72	138.79	20.21
38.	231.21	4.87	227.04	7.16	230.10	5.10	228.84	7.44
39.	173.18	16.11	174.90	18.76	163.64	16.37	172.80	21.30
40.	196.49	13.45	192.91	16.47	189.42	14.42	193.43	18.48
41.	193.62	13.07	190.72	16.08	186.60	13.90	190.96	18.00
42.	126.95	13.19	137.61	17.26	121.19	12.21	131.76	18.50
43.	199.92	12.82	195.78	15.92	193.45	13.80	196.64	17.79
44.	158.99	16.12	164.25	18.96	149.70	15.76	160.62	21.35
45.	216.95	13.17	209.26	16.64	211.86	14.66	211.88	18.54
46.	160.86	7.19	163.29	9.87	156.73	7.17	161.50	10.49
47.	124.00	10.72	133.28	14.64	119.48	10.03	128.18	15.44
48.	198.58	13.10	194.64	16.17	191.85	14.08	195.37	18.10
49.	222.44	8.02	216.78	11.11	219.89	8.61	218.98	11.89
50.	222.44	8.02	216.78	11.11	219.89	8.61	218.98	11.89
51.	186.13	14.91	184.67	17.70	177.62	15.66	184.08	20.04
52.	195.16	11.47	192.27	14.52	189.15	12.15	192.66	16.08
53.	108.86	7.31	116.58	10.79	106.52	6.91	112.43	11.01
54.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
55.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
56.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
57.	197.63	13.26	193.85	16.31	190.74	14.24	194.49	18.28
58.	194.42	12.73	191.42	15.76	187.65	13.54	191.74	17.60
59.	191.18	11.37	189.06	14.39	185.03	11.95	189.08	15.92
60	163.16	8.78	165.72	11.68	158.10	8.76	163.76	12.59
61.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
62.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
63.	166.74	16.15	170.09	18.86	157.22	16.13	167.28	21.34
64.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
65.	195.06	11.50	192.18	14.55	189.03	12.18	192.56	16.12
66.	205.24	11.79	200.36	14.98	199.71	12.75	201.69	16.61

C01147297

0008839

		AT TIME= -12 SEC				AT TIME= 0 SEC			
	Azimuth	Elevation	Azimuth	Elevation	Azimuth	Elevation	Azimuth	Elevation
Witness Name	TWA800	TWA800	USA217	USA217	TWA800	TWA800	USA217	USA217
67.	166.74	16.15	170.09	18.86	157.22	16.13	167.28	21.34
68.	150.57	11.84	156.24	15.12	144.04	11.49	152.67	16.49
69.	113.35	8.29	121.70	11.98	110.43	7.80	117.18	12.33
70.	166.74	16.15	170.09	18.86	157.22	16.13	167.28	21.34
71.	107.62	5.80	113.85	8.70	105.80	5.54	110.50	8.83
72.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
73.	159.08	16.08	164.31	18.93	149.82	15.73	160.69	21.30
74.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
75.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
76.	170.72	12.77	172.66	15.76	163.24	12.90	170.69	17.51
77.	150.51	13.72	156.93	16.98	142.95	13.24	152.92	18.73
78.	143.03	12.11	150.19	15.57	136.69	11.58	145.95	16.90
79.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
80.	169.13	11.16	171.16	14.17	162.63	11.23	169.27	15.57
81.	192.03	13.33	189.43	16.31	184.77	14.14	189.51	18.28
82.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
83.	87.51	5.22	93.65	8.17	86.78	4.98	90.47	8.12
84.	198.11	12.67	194.37	15.74	191.60	13.57	195.05	17.57
85.	173.17	14.78	174.78	17.59	164.46	15.01	172.82	19.82
86.	191.16	11.37	189.04	14.39	185.01	11.95	189.06	15.92
87.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
88.	351.19	58.41	0.00	69.97	30.45	48.12	0.00	88.46
89.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
90.	307.26	31.97	260.96	50.59	327.43	36.61	288.91	51.55
91.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
92.	144.56	26.27	157.40	27.20	130.72	23.76	150.20	31.62
93.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
94.	107.85	8.99	117.33	13.07	105.08	8.38	112.27	13.40
95.	127.03	14.14	138.33	18.24	120.87	13.02	132.16	19.65
96.	168.40	16.35	171.35	19.01	158.73	16.39	168.70	21.55
97.	130.51	3.19	133.21	4.79	128.98	3.14	131.64	4.88
98.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
99.	198.63	3.34	197.46	4.93	197.03	3.41	197.75	5.10

C01147297

000840

	AT TIME= -12 SEC				AT TIME= 0 SEC			
	Azimuth	Elevation	Azimuth	Elevation	Azimuth	Elevation	Azimuth	Elevation
Witness Name	TWA800	TWA800	USA217	USA217	TWA800	TWA800	USA217	USA217
100.	155.97	3.40	157.49	5.01	154.04	3.39	156.44	5.16
101.	155.97	3.40	157.49	5.01	154.04	3.39	156.44	5.16
102.	184.27	3.44	184.00	5.05	182.41	3.49	183.82	5.23
103.	130.38	3.29	133.18	4.95	128.81	3.24	131.56	5.04
104.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
105.	160.41	16.11	165.33	18.93	151.08	15.81	161.84	21.32
106.	351.19	58.41	0.00	69.97	30.45	48.12	0.00	88.46
107.	213.60	7.63	209.21	10.52	210.61	8.11	210.76	11.27
108.	143.03	12.11	150.19	15.57	136.69	11.58	145.95	16.90
109.	193.14	13.93	190.19	16.88	185.57	14.85	190.37	19.01
110.	222.44	8.02	216.78	11.11	219.89	8.61	218.98	11.89
111.	137.48	10.12	144.45	13.57	132.42	9.68	140.41	14.48
112.	168.79	12.97	171.16	15.96	161.20	13.05	168.99	17.74
113.	168.79	12.97	171.16	15.96	161.20	13.05	168.99	17.74
114.	188.91	14.58	186.83	17.43	180.73	15.41	186.55	19.70
115.	188.91	14.58	186.83	17.43	180.73	15.41	186.55	19.70
116.	188.91	14.58	186.83	17.43	180.73	15.41	186.55	19.70
117.	92.44	4.35	97.51	6.76	91.62	4.18	94.85	6.75
118.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
119.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
120.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
121.	137.48	10.12	144.45	13.57	132.42	9.68	140.41	14.48
122.	90.71	3.84	95.21	5.99	90.05	3.71	92.86	5.98
123.	123.98	10.69	133.23	14.60	119.47	10.00	128.15	15.40
124.	123.98	10.69	133.23	14.60	119.47	10.00	128.15	15.40
125.	160.41	16.11	165.33	18.93	151.08	15.81	161.84	21.32
126.	169.14	16.32	171.91	18.97	159.49	16.39	169.34	21.51
127	167.30	15.98	170.48	18.70	157.89	15.97	167.75	21.15
128	186.71	12.27	185.35	15.26	179.84	12.83	184.94	16.98
129	139.14	15.59	148.86	19.11	131.32	14.57	143.32	21.05
130	123.13	13.62	134.75	17.89	117.53	12.50	128.46	19.12
131	130.71	14.54	141.59	18.47	124.07	13.44	135.59	20.03
132	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

C01147297

000841

		AT TIME= -12 SEC				AT TIME= 0 SEC			
	Azimuth	Elevation	Azimuth	Elevation	Azimuth	Elevation	Azimuth	Elevation
Witness Name	TWA800	TWA800	USA217	USA217	TWA800	TWA800	USA217	USA217
133.	212.49	10.07	207.07	13.30	208.37	10.88	208.88	14.52
134.	166.75	16.14	170.09	18.85	157.24	16.12	167.28	21.33
135.	132.44	14.75	143.11	18.60	125.56	13.66	137.19	20.24
136.	194.33	13.77	191.15	16.74	186.94	14.70	191.46	18.83
137.	130.90	14.52	141.72	18.44	124.25	13.43	135.75	20.01
138.	92.72	2.97	96.18	4.63	92.15	2.89	94.37	4.63
139.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
140.	120.10	8.51	128.02	12.08	116.70	8.04	123.67	12.54
141.	212.49	10.07	207.07	13.30	208.37	10.88	208.88	14.52
142.	166.28	16.17	169.74	18.88	156.76	16.13	166.88	21.36
143.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
144.	159.33	16.08	164.50	18.92	150.06	15.74	160.91	21.30
145.	170.91	11.04	172.59	14.04	164.48	11.15	170.87	15.43
146.	192.58	6.62	191.09	9.15	189.14	6.84	191.23	9.75
147.	132.87	14.84	143.50	18.66	125.91	13.75	137.60	20.33
148.	195.00	13.60	191.71	16.59	187.75	14.53	192.09	18.64
149.	106.81	7.56	114.91	11.17	104.52	7.12	110.58	11.38
150.	187.73	14.74	185.91	17.57	179.39	15.54	185.50	19.86
151.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
152.	126.69	14.02	137.98	18.13	120.62	12.91	131.82	19.51
153.	112.53	8.27	120.92	11.97	109.67	7.78	116.39	12.32
154.	112.29	8.29	120.72	12.01	109.44	7.79	116.18	12.35
155.	189.34	14.41	187.18	17.28	181.28	15.24	186.95	19.51
156.	203.27	11.07	199.00	14.22	197.98	11.88	200.11	15.68
157.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
158.	269.81	5.89	262.93	9.13	270.83	6.25	266.44	9.28
159.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
160.	137.48	10.12	144.45	13.57	132.42	9.68	140.41	14.48
161.	166.66	16.21	170.03	18.91	157.11	16.18	167.21	21.40
162.	156.49	13.44	161.56	16.58	148.85	13.14	158.16	18.34
163.	156.49	13.44	161.56	16.58	148.85	13.14	158.16	18.34
164.	131.43	13.59	141.56	17.48	125.14	12.65	135.93	18.89
165	155.62	12.50	160.57	15.68	148.55	12.23	157.28	17.24

C01147297

000842

		AT TIME= -12 SEC				AT TIME= 0 SEC			
	Azimuth	Elevation	Azimuth	Elevation	Azimuth	Elevation	Azimuth	Elevation
Witness Name	TWA800	TWA800	USA217	USA217	TWA800	TWA800	USA217	USA217
166.	220.74	7.78	215.43	10.80	218.15	8.33	217.47	11.55
167.	201.43	12.56	197.05	15.69	195.20	13.54	198.05	17.49
168.	217.65	8.21	212.46	11.26	214.69	8.79	214.38	12.10
169.	127.52	3.15	130.32	4.74	126.07	3.09	128.71	4.83
170.	225.71	6.72	220.57	9.55	223.80	7.15	222.66	10.10
171.	191.20	7.82	189.65	10.56	187.06	8.11	189.72	11.37
172.	79.67	2.45	82.53	3.88	79.49	2.40	81.07	3.85
173.	168.98	13.81	171.43	16.74	160.88	13.89	169.17	18.71
174.	220.11	8.39	214.50	11.52	217.26	9.03	216.63	12.38
175.	227.23	6.89	221.82	9.79	225.36	7.35	224.04	10.36
176.	188.15	7.70	187.04	10.41	183.99	7.95	186.90	11.20
177.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
178.	196.06	13.01	192.66	16.05	189.21	13.91	193.14	17.96
179.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
180.	195.74	11.10	192.82	14.15	189.97	11.75	193.26	15.62
181.	107.85	8.99	117.33	13.07	105.08	8.38	112.27	13.40
182.	120.70	8.65	128.68	12.24	117.21	8.17	124.30	12.73
183.	159.75	6.67	162.15	9.24	155.93	6.64	160.42	9.79
184.	195.62	13.56	192.20	16.56	188.43	14.51	192.64	18.60
185.	144.31	10.79	150.59	14.15	138.59	10.40	146.82	15.25
186.	208.43	8.77	204.19	11.79	204.62	9.34	205.53	12.76
187.	159.22	13.29	163.67	16.39	151.58	13.08	160.56	18.15
188.	258.98	4.08	254.36	6.28	259.21	4.26	256.64	6.39
189.	160.13	15.80	165.04	18.67	150.99	15.51	161.57	20.99
190.	195.07	13.63	191.76	16.62	187.80	14.57	192.14	18.67
191	196.06	13.01	192.66	16.05	189.21	13.91	193.14	17.96
192	221.45	7.14	216.46	10.02	219.13	7.61	218.40	10.66
193	133.27	14.87	143.84	18.68	126.26	13.79	137.96	20.36
194	131.65	14.64	142.40	18.53	124.88	13.55	136.45	20.13
195	152.38	9.04	156.61	12.08	147.34	8.87	153.87	12.96
196	134.31	15.07	144.78	18.82	127.12	13.98	138.94	20.57
197	183.74	19.10	182.66	21.17	172.43	20.08	181.57	24.51
198	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

C01147297

000843

		AT TIME= -12 SEC				AT TIME= 0 SEC			
	Azimuth	Elevation	Azimuth	Elevation	Azimuth	Elevation	Azimuth	Elevation
Witness Name	TWA800	TWA800	USA217	USA217	TWA800	TWA800	USA217	USA217
199.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
200.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
201.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
202.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
203.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
204.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
205.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
206.	166.74	16.15	170.09	18.86	157.22	16.13	167.28	21.34
207.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
208.	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

C01147297

000844

Witness name	Recorder Down t=0			Apex t=15 sec			Right Wing Fail t=42			
	Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)	
100.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
101.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
102.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
103.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
104.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
105.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
106.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
107.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
108.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
109.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
110.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
111.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
112.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
113.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
114.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
115.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
116.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
117.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
118.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
119.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
120.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
121.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
122.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
123.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
124.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
125.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
126.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
127.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
128.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
129.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
130.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
131.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
132.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453

C01147297

000845

	Recorder Down t=0			Apex t=15 sec			Right Wing Fail t=42			
Witness name	Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)	
133.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
134.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
135.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
136.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
137.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
138.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
139.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
140.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
141.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
142.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
143.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
144.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
145.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
146.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
147.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
148.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
149.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
150.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
151.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
152.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
153.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
154.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
155.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
156.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
157.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
158.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
159.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
160.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
161.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
162.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
163.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
164.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
165.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453

C01147297

000846

	Recorder Down t=0			Apex t=15 sec			Right Wing Fail t=42			
Witness name	Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)	
166.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
167.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
168.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
169.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
170.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
171.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
172.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
173.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
174.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
175.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
176.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
177.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
178.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
179.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
180.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
181.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
182.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
183.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
184.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
185.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
186.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
187.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
188.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
189.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
190.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
191.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
192.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
193.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
194.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
195.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
196.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
197.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
198.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453

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C01147297

	Recorder Down t=0			Apex t=15 sec			Right Wing Fail t=42			
Witness name	Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)	
199.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
200.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
201.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
202.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
203.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
204.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
205.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
206.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
207.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
208.	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
0	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
0	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
0	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
0	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
0	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
0	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
0	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
0	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
0	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
0	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
0	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
0	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
0	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
0	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
0	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
0	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
0	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
0	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
0	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
0	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
0	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
0	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
0	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453
0	40.646	72.687	13820	40.6522	72.664	16800	40.6661	72.6315	6000	0.017453

000848

Witness name	Witness Location Latitude	Longitude	Witness Azimuth	Ground Dist (ft) t=0	Ground Dist (ft) t=15	Ground Dist (ft) t=42	Az (deg) [1] t=0	Az (deg) [2] t=15	Az (deg) [3] t=42	Closest Az (deg)
1.	40.8008	72.6276	?	58772	55099	49118	196.23	190.53	181.26	#VALUE!
2.	40.7669	72.7539	?	47796	48638	49943	157.22	149.25	137.33	#VALUE!
3.	40.74	72.85	?	56607	60561	66125	127.20	121.85	113.97	#VALUE!
4.	40.7198	73.094	?	115690	121398	129332	103.31	101.57	98.56	#VALUE!
5.	40.6532	73.1575	?	130164	136493	145543	91.00	89.99	87.98	#VALUE!
6.	41.0171	72.2448	?	182156	176255	166578	222.18	221.13	219.94	#VALUE!
7.	40.767	72.7539	?	47830	48670	49969	157.24	149.28	137.36	#VALUE!
8.	40.7358	72.8542	?	56638	60768	66589	125.26	120.04	112.36	#VALUE!
9.	40.7333	72.8667	?	58995	63352	69469	122.59	117.75	110.57	#VALUE!
10.	40.794	72.807	?	63328	65064	67266	148.39	142.56	133.82	#VALUE!
11.	40.794	72.807	?	63328	65064	67266	148.39	142.56	133.82	#VALUE!
12.	40.7988	72.64	?	57198	53854	48434	193.14	187.08	177.22	#VALUE!
13.	40.8009	72.7565	?	59646	59932	60061	161.20	154.73	144.86	#VALUE!
14.	40.7897	72.6695	?	52610	50150	46266	185.28	178.26	166.87	#VALUE!
15.	40.7841	72.7358	?	52120	52017	51778	164.99	157.56	146.15	#VALUE!
16.	40.74	72.85	?	56607	60561	66125	127.20	121.85	113.97	#VALUE!
17.	40.74	72.85	?	56607	60561	66125	127.20	121.85	113.97	#VALUE!
18.	40.9783	73.0444	?	156206	158583	161026	140.74	138.44	134.84	#VALUE!
19.	41.25	72.2	?	257812	252620	243771	211.50	210.53	209.31	#VALUE!
20.	40.8418	72.5538	?	80304	75525	67552	207.31	203.80	198.55	#VALUE!
21.	40.7815	72.7515	?	52515	52977	53564	160.14	152.82	141.72	#VALUE!
22.	40.8383	72.8117	?	78109	79165	80110	153.79	148.93	141.54	#VALUE!
23.	40.5945	73.5029	?	226551	233077	242502	84.98	84.55	83.54	#VALUE!
24.	40.8125	72.6876	?	60699	58802	55576	179.84	173.63	163.79	#VALUE!
25.	40.7495	72.8193	?	52544	55683	60149	135.86	129.52	120.30	#VALUE!
26.	40.7471	72.7633	?	42464	44161	46890	150.20	141.54	128.99	#VALUE!
27.	40.5784	73.3654	?	189357	195958	205577	82.30	81.88	80.81	#VALUE!
28.	40.8278	72.6268	?	68331	64836	58964	194.10	189.13	181.26	#VALUE!
29.	40.7367	72.8542	?	56828	60933	66714	125.53	120.31	112.62	#VALUE!
30.	40.8443	72.5035	?	88289	82882	73959	215.09	212.38	208.59	#VALUE!
31.	40.7125	73.0758	?	110192	115949	123977	102.58	100.79	97.70	#VALUE!
32.	40.7833	72.6904	?	50063	48347	45720	178.92	171.31	159.13	#VALUE!
33.	40.7748	72.8151	?	58804	61164	64372	142.95	136.90	127.94	#VALUE!

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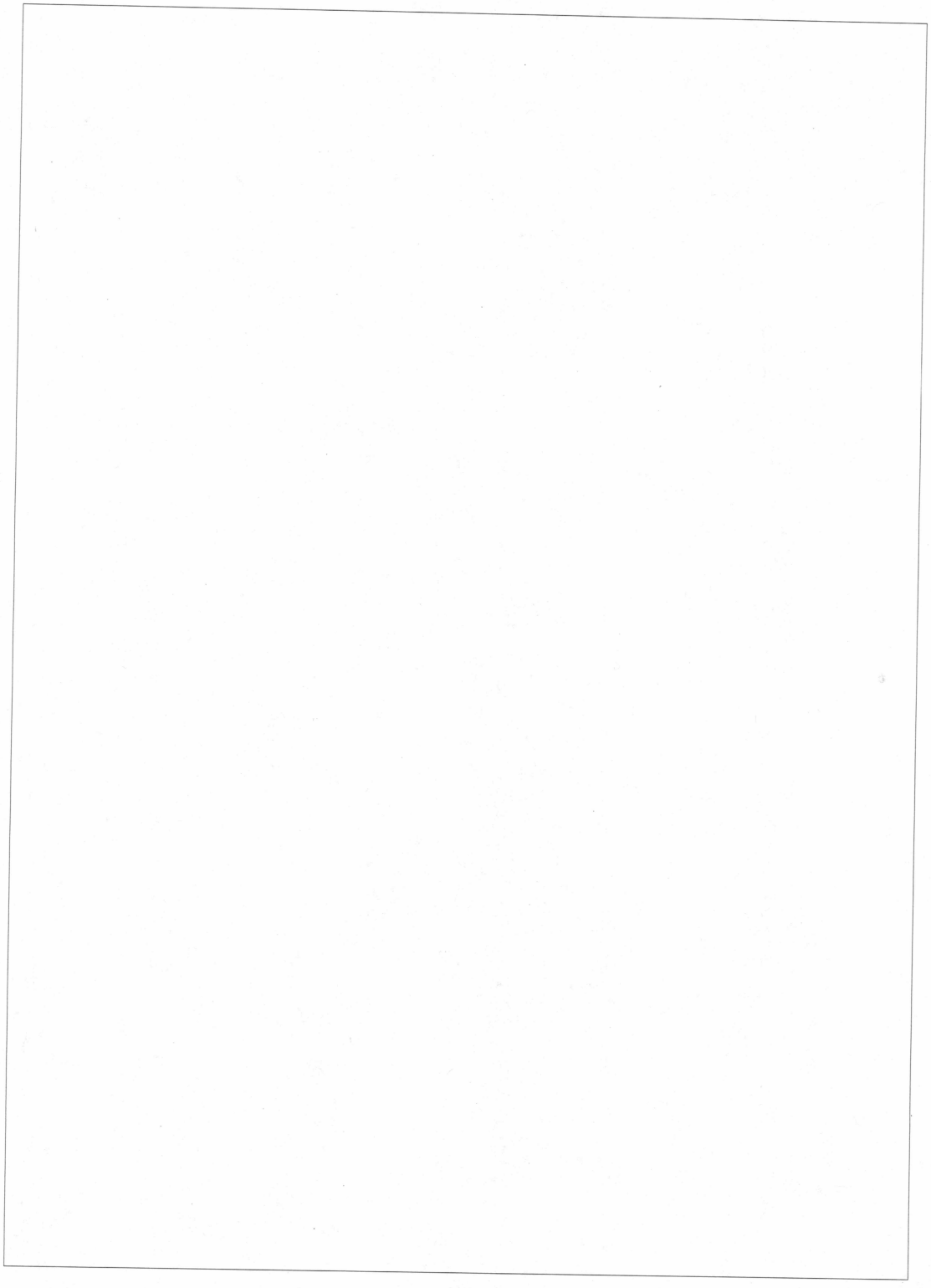
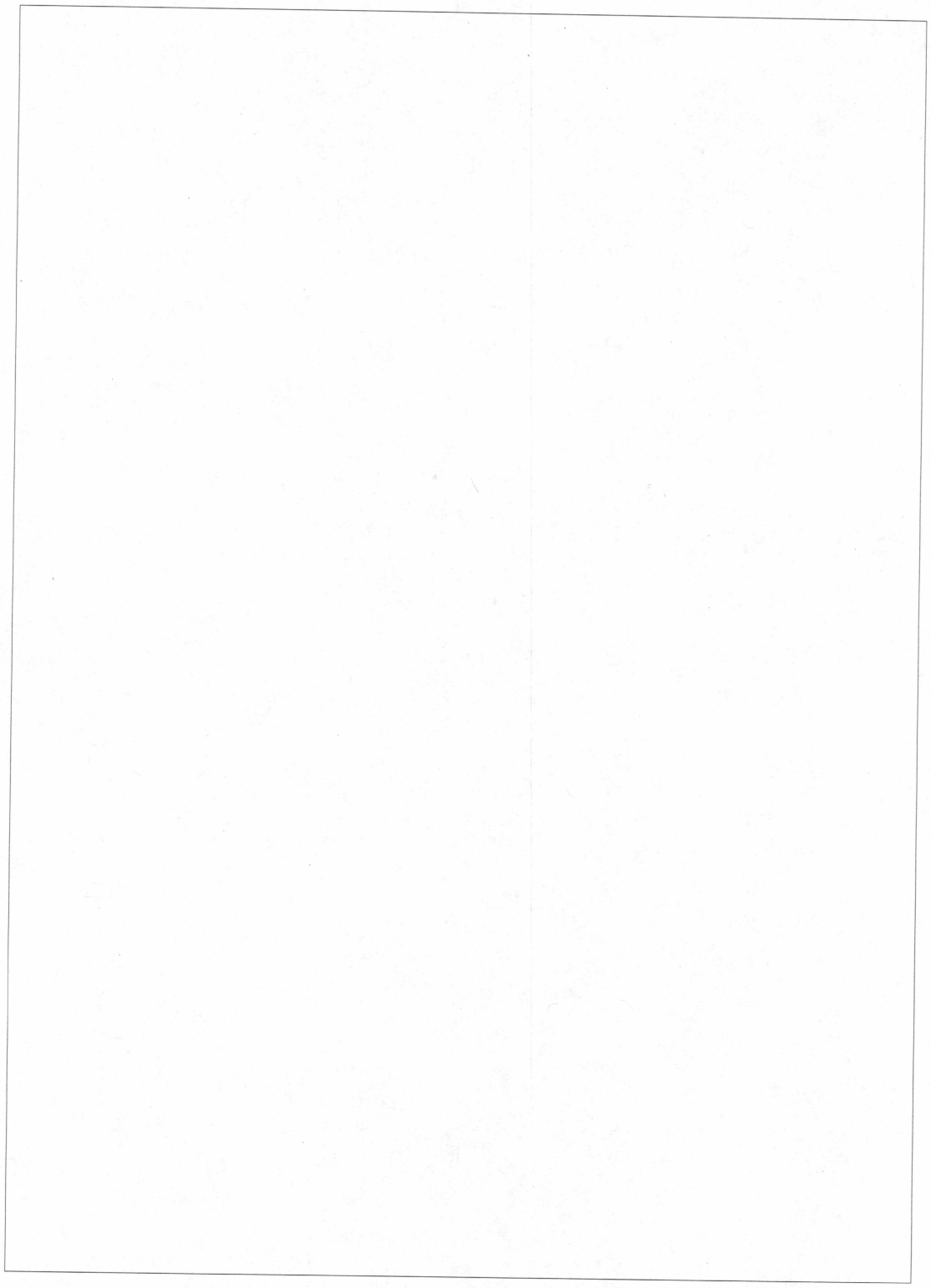
000849

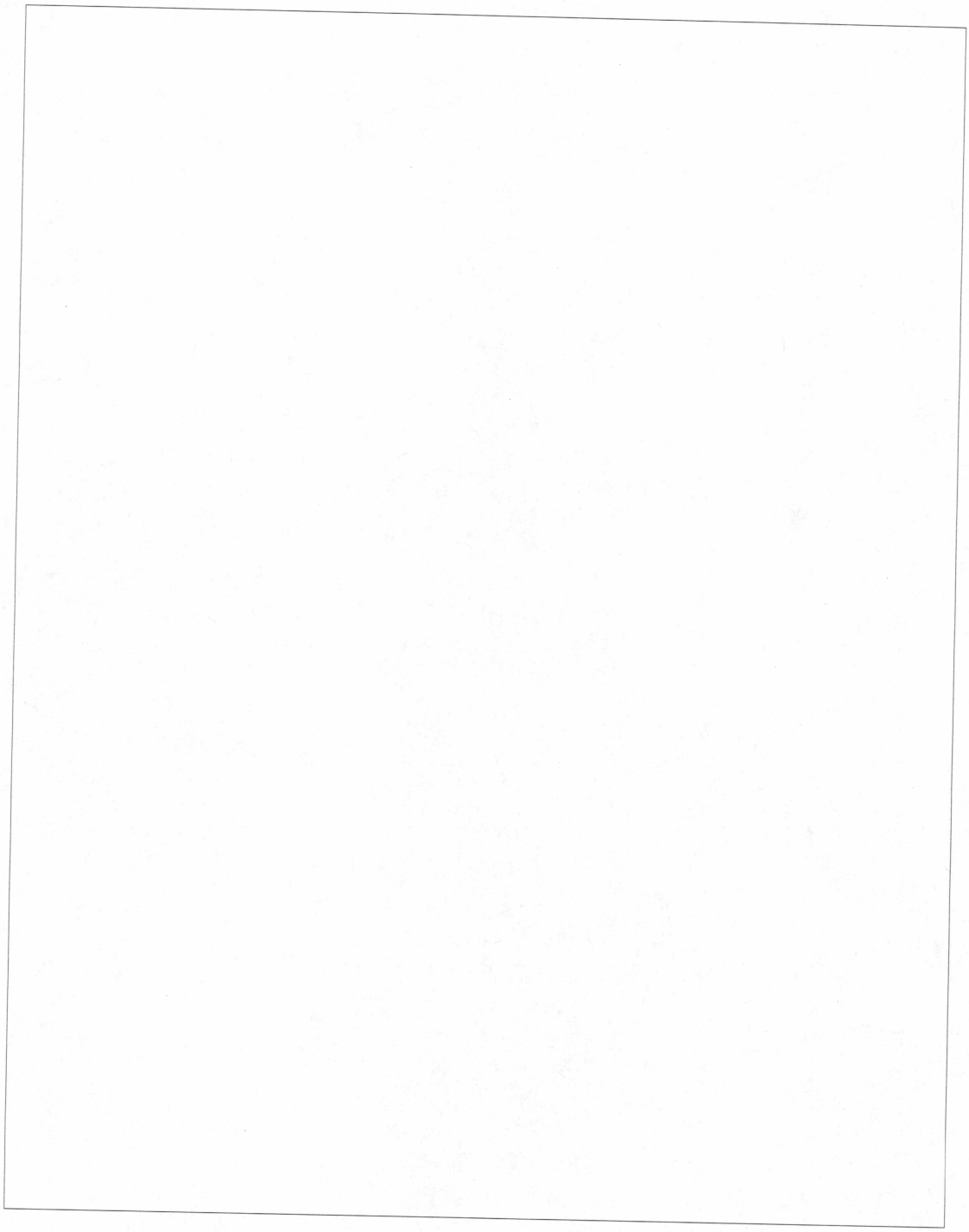
Sheet1



Sheet1



Sheet1



	Recorder Down t=0			Apex t=15 sec			Right Wing Fail t=42					
	Longitude	Latitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)	Latitude	Longitude	Altitude (ft)			
	72.687	40.646	13820	40.6522	72.664	16800	40.6661	72.6315	6000			
Witness Name	Longitude	Latitude		1	2	3	4	5	6	7		
1.	72.6276	40.8008						X				
2.	72.7539	40.7669						X				
3.	72.85	40.74			X							
4.	73.094	40.7198			X							
5.	73.1575	40.6532						X				
6.	72.2448	41.0171						X				
7.	72.7539	40.767			X							
8.	72.8542	40.7358				X						
9.	72.8667	40.7333				X						
10	72.807	40.794			X							
11	72.807	40.794			X							
12	72.64	40.7988						X				
13	72.7565	40.8009						X				
14	72.6695	40.7897						X				
15	72.7358	40.7841						X				
16	72.85	40.74				X						
17	72.85	40.74				X						
18	73.0444	40.9783				X						
19	72.2	41.25			X							
20	72.5538	40.8418			X							
21	72.7515	40.7815			X							
22	72.8117	40.8383				X						
23	73.5029	40.5945				X						
24	72.6874	40.8133						X				
25	72.8193	40.7495			X							
26	72.6833	40.7667					X					
27	73.3654	40.5784		X								
28	72.6268	40.8278				X						
29	72.8542	40.7367				X						
30	72.5035	40.8443			X							
31	73.0758	40.7125			X							
32	72.6904	40.7833					X					

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APPROVED FOR
RELEASE DATE:
19-Mar-2012

(b)(6)
(b)(7)(c)

Sheet1

Witness Name	Longitude	Latitude	1	2	3	4	5	6	7
27	73.3654	40.5784	X						
104.	?	?	X						
3.	72.85	40.74		X					
4.	73.094	40.7198		X					
7.	72.7539	40.767		X					
10.	72.807	40.794		X					
11.	72.807	40.794		X					
19.	72.2	41.25		X					
20.	72.5538	40.8418		X					
21.	72.7515	40.7815		X					
25.	72.8193	40.7495		X					
30.	72.5035	40.8443		X					
31.	73.0758	40.7125		X					
37.	72.85	40.74		X					
38.	72.2576	40.9192		X					
42.	72.8845	40.7369		X					
43.	72.6397	40.7961		X					
52.	72.6501	40.8198		X					
57.	72.6503	40.7928		X					
59.	72.6663	40.8244		X					
64.	?	?		X					
65.	72.6507	40.8194		X					
73.	72.7762	40.7624		X					
75.	?	?		X					
76.	72.7499	40.8045		X					
77.	72.815	40.7747		X					
80.	72.7621	40.8282		X					
82.	?	?		X					
91.	?	?		X					
93.	?	?		X					
94.	73.0144	40.7134		X					
105.	?	?		X					

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