RAS 5322 72-22-ISFSI — Applicant Exhibit 126 — Rec'd 7/1/02

AIRCRAFT ACCIDENT INVESTIGATION REPORT

AUTHORITY: Under the provisions of Air Force Regulation (AFR) 110-14, the Ninth Air Force Commander appointed Lieutenant Colonel Robert B. Bahnij to conduct an Aircraft Accident Investigation of the F-16A (SN-79-0391) accident which occurred on the active runway 35 at Al Kharj Air Base, Saudi Arabia on 11 April 1991. Technical Advisors were Captain Joseph M. Ford (operations), Captain David W. Morrell (maintenance), and Captain David A. Cass (medical) (Tab Y-1).

PURPOSE: An aircraft accident investigation is convened under AFR 110-14 to collect and preserve all relevant evidence for possible use in claims, litigation, disciplinary actions, adverse administrative proceedings, or for any other purpose deemed appropriate by competent authority. The investigation is to obtain factual information and is not intended to determine the cause of the accident. In addition, the aircraft accident investigation board cannot draw conclusions or make recommendations. This report is available for public dissemination under the Freedom of Information Act (5 U.S.C. 552) and AFR 12-30.

SUMMARY OF FACTS

1. History of Flight: On 11 April 1991, Lieutenant Colonel Stephen E. Abshier and Major John P. Androski were scheduled for a Combat Air Patrol (CAP) mission originating at Al Kharj Air Base, Saudi Arabia in support of Operation Desert Storm. They were filed for a 0900 local takeoff under the callsign of Boxer 31 (wingman was Boxer 32) (Tabs K-1, A-1). Major Androski (Boxer 32) was number two of the two ship flight. Following normal ground operations, Boxer 31 flight began a briefed formation takeoff (Tab V-1). During the takeoff, Major Androski's nose tire failed and his takeoff was aborted (Tab V-4). During the abort sequence, the aircraft departed the right side of the runway (Tab R-1). As soon as the nose gear collapsed the pilot initiated ejection (Tab V-3). The pilot survived the ejection with only minor injuries (Tab X-1). The ensuing fire caused major aircraft damage (Tab M-1). The crash site was 120 feet east of the departure end of runway 35 at the 1000 foot remaining mark, Al Kharj Air Base, Saudi Arabia (Tab R-1). The 4404 TFW(P) composite wing Public Affairs Office handled news inquiries (Tab Z-1).

2. Mission: The flight was scheduled and planned as a CAP mission in support of Operation Desert Storm (Tabs K-1, A-1). The planned profile included a formation takeoff, high altitude flight to a CAP point in Iraq, air refueling, and high altitude return to base (RTB) (Tabs V-1, V-3).

PFS Exh. 126

NUCLEAR REGULATORY COMMISSION

Docket No. _____ Official Exh. No. 126

In the matter of PFS

Staff	IDENTIFIED ✓
Applicant ✓	RECEIVED ✓
Intervenor	REJECTED
Other	WITHDRAWN
DATE 7/16/02	Witness
Clerk	

3. Briefing and Pre-flight: Lieutenant Colonel Abshier and Major Androski arrived for duty approximately 0700 local, with adequate rest. Both pilots participated in mission planning and preparation prior to the scheduled 0800 local briefing. The briefing was conducted using the 174 TFW Briefing Guide, and covered all applicable items. Pre-flight and ground operations were normal with one exception: Major Androski's Inertial Navigation System (INS) failed during the alignment phase and was realigned prior to taxiing without further incident. Taxi and pre-takeoff procedures were conducted without significant events (Tabs V-1, V-3).

4. Flight: Following normal taxi and ground procedures, Box 31 flight called "ready for takeoff" at 08:55:52 local. Upon receiving clearance onto the runway to hold, Boxer 31 and 32 taxied into position on runway 35 with Boxer 31, the leader, taking the left and Boxer 32, the wingman, on the right (Tab V-1). At 08:56:07 local, Boxer 31 flight was cleared for takeoff (Tab N-1). Boxer 31 acknowledged the clearance and signaled for engine runup (Tab V-1). Receiving a visual ready signal from Boxer 32, Boxer 31 signaled for the takeoff to begin. At approximately 135 knots Indicated Air Speed (IAS), Major Androski noticed chunks of rubber flying past the canopy and a second or two later the tire let go and the nose dropped (Tab V-4). He started to abort the takeoff at approximately 140 knots IAS making the following radio call, "Boxer 32 is aborting, blew a nose tire" (Tab N-1). He steered the aircraft toward the center of the runway with 7800 feet of runway remaining (Tab R-1). The aircraft was established on the centerline with 4400 feet of runway remaining traveling at 120 knots (Tab R-1). The nose wheel rim, with no rubber remaining, began to strike runway center lights. Impact with the runway centerline lights caused sufficient nose wheel flange bending to induce a yawing moment on the aircraft as the wheel rotated (Tab J-3). After striking the ninth runway center light, the aircraft began to drift right (Tab R-1). Major Androski attempted to correct the right drift with full left rudder and differential braking in an effort to remain on the runway (Tab V-1). The deformed nose wheel rim pulling right plus the application of left brake and rudder caused an excessive yaw angle on the left main tire (Tab J-3). The left main tire failed 700 feet following the initiation of right drift (Tab R-1). The aircraft was now on a collision course with the departure end barrier unit on the right side of the runway (Tab R-1). 250 feet after the left main tire failed the pilot applied right brake with 2950 feet remaining to avoid a barrier unit collision (Tab R-1). The aircraft departed the runway with 2200 feet remaining Tab R-1). The left underwing of the aircraft struck the edge of the barrier unit after departing the actual runway surface (Tab Z-4). Abeam 1500 feet runway remaining, the nose gear collapsed (Tab V-4). The centerline tank exploded causing the ensuing fire (Tabs Z-4, M-1).

Following the nose gear failure, Major Androski safely ejected and the aircraft came to rest 120 feet east of the runway edge near the 1000 feet remaining marker (Tabs V-1, V-3, R-1, X-1).

5. Impact: The aircraft came to rest 120 feet east of the right edge of runway 35, 1000 feet from the departure end at Al Kharj Air Base, Saudi Arabia (Tab R-1). Significant aircraft damage occurred as a result of the post crash fire (Tab M-1).

6. Ejection Seat: The ejection seat functioned normally (Tab V-3).

7. Personal and Survival Equipment: All inspections of the mishap pilot's personal and survival equipment were current (Tab U-3). The seat kit deployed normally and a four line jettison was not accomplished due to time availability. The locator beacon did not activate due to manual mode selection. The survival equipment was not used due to the location of the mishap.

8. Crash Response: The Al Kharj tower activated the crash net at 0900 local. The first fire crew, call sign C-9, was at the scene at 0901 local and dispensed its available water load at 0902 local. Chief 2 reported medics on the scene at 0903 local. The aircraft fire, was extinguished at 0904 local. Major Androski's post ejection landing was on the edge of runway 35 and he was removed from the immediate crash site by responding emergency crews (Tabs O-3, V-3).

9. Maintenance Documentation: A thorough review of maintenance records for aircraft 79-0391 revealed no discrepancies related to the accident. There were no overdue time change items (TCI) on the aircraft. Seven time compliance technical orders (TCTO) were not complied with (Tab H-1). None of these were related to the nose wheel assembly. No scheduled inspections pertinent to the accident were overdue. The equipment review report was reviewed and no overdue inspections were noted. The last flight prior to the accident was ground aborted for a blown left main tire. The tire was replaced, the in-process inspection (IPI) was performed, and documentation was in order (Tabs H-2, H-3)

10. Maintenance Personnel and Supervision: Pre-flight servicing was reviewed and no discrepancies were identified. Individual training records were reviewed and no discrepancies were noted (Tabs H-4, H-5).

11. Fluid Sample Analysis: Oil sample analysis indicated no abnormalities. Other fluids were not evaluated (Tab O-2).

12. Airframe and Aircraft Systems:

a. Landing gear and braking systems. Analysis of available components showed the brakes were functioning normally and the pilot had full anti-skid braking (Tab J-3). After the nose tire failed, the nose wheel was capable of rolling on the flanges with nose wheel steering (NWS) in the neutral position (Tab J-3). Severed lines to the nose wheel weight on wheels (WOW) switch disabled NWS forcing it to the neutral position (J-8). Steering was provided by rudder and differential braking (Tab J-3). Impact with the centerline runway lights caused nose wheel flange deformation and a yawing moment on the aircraft (Tab J-3).

b. Tires. Insufficient nose tire material was available for analysis. Strands of cord from the tire wrapped around the axle producing a whip-like effect that severed three of six wires leading to the WOW switch (Tab J-4). The pilot observed nose tire delamination prior to the complete failure (Tab V-3). Yaw angle and excessive heat buildup caused failure of the left main tire (Tab J-8).

c. Hydraulic systems. Hydraulic lines evaluated were intact and appeared to be in working condition (Tab J-2).

d. Electrical systems. Three leads to the WOW switch were severed, disabling the NWS relay. All anti-skid, braking, and steering control boxes and electrical systems were otherwise functional until exposed to post-crash fire (Tabs J-3, J-4, J-5).

13. Operations Personnel and Supervision: The mission was conducted under the authority of the 174 TFW and the 138 TFS (Tab K-1). The briefing was conducted by Lieutenant Colonel Abshier using the 138 TFS Briefing Guide and was thorough and complete (Tabs U-1, U-3).

14. PILOT QUALIFICATIONS: Major Androski was current and fully qualified to conduct the mission (Tab T-1). His flying experience follows: (Tab G-1)

Aircraft	Hours
A37B	1033.0
A10A	1670.5
F-16	304.1

	30/60/90 Day Summary
30 Day	9 sorties/34.6 hours
60 Day	26 sorties/74.8 hours
90 Day	48 sorties/120.4 hours

15. Medical: Major Androski was medically qualified for the flight. Major Androski suffered a mild concussion and heel bruises due to the ejection and parachute landing. Toxicology report from the Armed Forces Institute of Pathology (AFIP) revealed no alcohol or illegal or prohibited drugs (Tab X-1).

16. Navigation Aids and Facilities: All applicable navigation aids were operational.

17. Weather: The Al Kharj Air Base weather for the morning of 11 April 1991 was 3/8 sky cover at 4000 feet, 2/8 sky cover at 10,000 feet, 1/8 sky cover at 25,000 feet, 5 miles visibility and the winds 070 degrees at 12 knots. Morning temperatures ranged from a low of 21 degrees centigrade at 0355 local to a high of 24 degrees centegrade at the time of the mishap (Tab W-1).

18. Directives and Publications:

a. Directives and publications applicable to the mishap were:

(1) AFR 60-16, General Flight Rules

(2) TACM 51-50, Tactical Aircrew Training

(3) TACR 55-116, F-16 Pilot Operational Procedures

(4) TACR 55-116/CH 8, CH 9 Local Operational Procedures/ANG Procedures

(5) TO 1F-16A-1, Flight Manual

(6) TO 1F-16A-1CL-1, Flight Manual Checklist

(7) 174 TFW Briefing Guide

b. The investigating board found no evidence of deviations from regulations.

Robert B. Bahnij

ROBERT B. BAHNIJ, Lt Col, USAF
AFR 110-14 Aircraft Accident Investigation Officer

GLOSSARY

Note: Acronyms, jargon, and terms are explained in the context in which they appear in this report. The application of these definitions is not universal and may be limited to this report.

SUMMARY OF FACTS

AFIP	- Armed Forces Institute of Pathology.
AFR	- Air Force Regulation
AFTERBURNER	- Fuel augmentation boosting engine thrust.
ANTI-SKID	- Protection against wheel lock-up during braking.
AFTO FORM 781 SERIES	- Individaul aircraft maintenance documentation forms.
AIRCRAFT ARMING	- Action of removing mechanical and explosive cartidge safing pins prior to flight to enable those systems to function.
BARRIER HOUSING	- Portable unit that has the braking mechanism for the cable. The cable catches the tail of an aborting aircraft.
CAMS	- Consolidated Aircraft Maintenance Squadron: All flightline and heavy maintenance functions aligned under one squadron.
CAP	- Combat Air Patrol.
CREW CHIEF	- Enlisted aircraft technician who performs aircraft general flightline maintenance.
DELAMINATION	- Surface material separating from the main assembly.
EOR	- End of Runway: Area at end of runway where final inspection of the aircraft is done prior to flight.
FLANGE	- Raised portion of the rim which contains the tire.
FORM 1042	- A medical form used to document the medical status of flying personnel

GROUND ABORT	- Aborted mission prior to take-off.
IAS	- Indicated Air Speed
IDLE	- Throttle full aft. This is a minimum thrust setting.
IPI	- In-Process Inspection.
MISSION PLANNING CELL	- A small group of pilots. Their job is to prepare all mission required information for the next day's mission
NWS	- Nose Wheel Steering.
OPENING SHOCK	- When parachute initially opens it catches the air with a hard tug.
PRE-FLIGHT	- Checklist of maintenance actions and inspections required before initial flight of the day.
RTB	- Return To Base.
RUNUP	- Advance throttle and perform an aircraft engine status check prior to takeoff.
SERVICING	- Replenishing fuel, fluids & gases prior to flight also includes visual inspections.
TAC	- Tactical Air Command.
TACM	- Tactical Air Command Manual.
TCI	- Time Change Items: Components and parts scheduled for replacement based on the timed installed or in-use.
TCTO	- Time Compliance Technical Orders: Periodic inspections or maintenance actions requiring completion within designated time frames.
TFS	- Tactical Fighter Squadron.
TOP THREE	- Squadron supervisor on duty.
TORQUE	- Value, in foot pounds, of pressure used to tighten screws and fittings.
WOW	- Weight on Wheels