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AFR 110-14 REPORT
F-16A S/N 80-0484
27 NOV 91
COL ROBERT B. SIMPSON
Investigating Officer

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FEDERAL REGULATORY COMMISSION

Docket No. _____ Official Exh. No. 133
 in the matter of PFS
 Staff _____ IDENTIFIED _____
 Applicant ✓ RECEIVED _____
 Intervenor _____ REJECTED _____
 Other _____ WITHDRAWN _____
 DATE 7/1/02 Witness _____
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PFS Exh. 133

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SUMMARY OF FACTS

1. HISTORY OF FLIGHT: On 27 November 1991, [REDACTED] was flying F-16A 80-0484 as number two on a two-ship surface attack tactics (SAT) mission. The flight lead aircraft was flown by [REDACTED]. Both pilots were assigned to the 113th Tactical Fighter Wing. The take-off at 0832 Eastern Standard Time and all events through the first tactical weapons delivery at Navy Dare Gunnery Range (R-5314) were uneventful. After terminating the first attack at approximately 0900, and while flying in tactical formation at approximately 500 feet above ground level (AGL) and 500 knots airspeed, [REDACTED] heard a loud bang and felt a rapid deceleration. The engine stagnated. The pilot executed the low attitude airstart procedures which resulted in a hot start with fan turbine inlet temperature (FTIT) exceeding 900 C. Restart attempts were unsuccessful (TAB A). The time from the first indication of a problem (loud bang) to ejection was approximately 1 minute and 52 seconds. [REDACTED] ejected and landed in the Albemarle Sound (3559N/7601W). Aircraft 484 also impacted the water about one mile north of the ejection point. [REDACTED] was picked up by a fishing boat and later taken to Portsmouth Naval Hospital by Coast Guard helicopter (TAB A).

2. MISSION: [REDACTED] was participating in a SAT with the weapons delivery phase being conducted on the Navy Dare Gunnery Range in North Carolina. The mission was centered around a unit training program being used to prepare for an upcoming operational readiness inspection (TAB V-22). Originally scheduled as a four-ship mission, only two aircraft departed together due to problems with the other two scheduled aircraft.

3. BRIEFING AND PREFLIGHT: The mission was scheduled as a flight of four F-16As on a SAT mission using the call sign Bully 01 (TAB-K). Report time for the mission was 0630 local. [REDACTED] reported prior to 0630 with appropriate crew rest. The supervision of flying (SOF) cancelled Bully 04 prior to report time. The SOF briefed weather, pilot changes, mission configuration and other information in accordance with normal procedures at 0630 (TAB V-3). A thorough mission briefing was given by [REDACTED] (TAB V-28). Bully 03 was ground delayed due to a maintenance problem. [REDACTED] was scheduled to fly in aircraft 430. When [REDACTED] arrived at the plane, it was not ready. After normal coordination with maintenance and operations supervisors, [REDACTED] was assigned aircraft 484. [REDACTED] preflighted Aircraft 484 in accordance with the checklist (TAB V-3).

4. FLIGHT ACTIVITY: The start was normal with the exception of the time compression time caused by the aircraft reassignment delay. [REDACTED] was allowed the extra time to perform [REDACTED] normal checks. Bully 01 and 02 made individual afterburner take-offs with a 20 second interval. The climb to flight level two-two zero (22,000 feet) was normal and uneventful. During the descent, Bully flight made two ninety-degree hard turns at G-warmup maneuvers as briefed. Bully 01 cancelled with air traffic control and made a visual flight rules descent. Check in with the range controller and the "fence-in" procedure to set-up switches as needed for the mission were normal. The tactical ingress phase at 500 feet and 480 knots began about 15 miles from the target at Navy Dare. Bully flight proceeded directly to the target until 4.9 miles where Bully 02 "actioned" (turned about 90 degrees) to arc the target. Bully 02 continued on the arc until Bully 01 had delivered his ordnance. Bully 02 then made a normal pop-up and delivery sequence (TAB V-3, 4, 5). [REDACTED] made a switch error on the

attack which precluded bomb release (TAB V-23). After recovery from the delivery, he started the egress to a briefed heading of 330 degrees. The egress continued for about one minute, and was then terminated by Bully 01. Approximately 2 seconds later, [REDACTED] experienced a "loud bang" (TAB V-5). The aircraft was in a slight upward climb and he experienced a rapid deceleration. It was estimated he increased his pitch to an attitude of 20 to 30 degrees (TAB V-31). The tanks were jettisoned after about 15 to 20 seconds (TAB N-1). The throttle was cycled, determined to be non-responsive, and placed to cut-off. The nose was pushed over at about 3500 feet. Apex occurred at about 5000 feet and 220 knots (TAB V-32). The EEC/BUC (Electronic Engine Control/Backup Fuel Control) switch was placed in BUC. The airspeed was checked to be within jet fuel starter (JFS) limitations. Then the JFS switch was placed in Start 2. During the descent (about a 5 degree glide) the RPM gauge was noted to be decreasing below 20 percent. [REDACTED] advanced the throttle to idle. The Fan Turbine Inlet Temperature (FTIT) immediately jumped through 800 degrees and was approaching 900 degrees. The throttle was again placed to OFF. At this point (about 2000 feet) [REDACTED] divided [REDACTED] attention between an ejection location and the airstart. [REDACTED] banked the aircraft toward land, leveled the wings at about 1000 feet and used both hands to eject (TAB V-6, 7, 8).

5. IMPACT: At approximately 0907 on 27 November 91, F-16A (S/N 80-0484) impacted the water in the Albemarle Sound (3559.3N/7601.2W) near the mouth of the Alligator River. The aircraft was destroyed. The engine was retrieved from the water on 11 December 91 (TAB J-1). The majority of the engine as well as the engine accessories were recovered intact. The different engine modules incurred varying degrees of damage (TAB J-3, 4).

6. EJECTION SEAT: [REDACTED] initiated ejection at about 900 to 1000 feet above water level. The aircraft was nose up in a slight zoom. [REDACTED] assumed a good body position and used both hands to pull the ejection handle. [REDACTED] saw the fire from the rocket motor and described the ejection as "much smoother than I anticipated" (TAB V-8).

7. PERSONAL AND SURVIVAL EQUIPMENT: All personal and survival equipment inspections were current. During parachute descent, [REDACTED] estimated that [REDACTED] would land in the water in about 20 to 30 seconds. [REDACTED] raised [REDACTED] visor, ripped off [REDACTED] face mask, and inflated [REDACTED] life perserver units (LPUs). Prior to entering the water, [REDACTED] was concerned about releasing [REDACTED] parachute risers. [REDACTED] did not remember that all unit harnesses had been modified with the Sea Water Activated Release Systems (SEAWARS). The SEAWARS activated before [REDACTED] could release the risers. After entering the water, [REDACTED] got into [REDACTED] life raft and raised the spray shield around [REDACTED]. [REDACTED] then moved the ON-OFF switch on the URT-33 Beacon to the placaded OFF position. This caused [REDACTED] to actually turn ON the beeper (URT-33). When [REDACTED] initially tried the PRC-50 radio, [REDACTED] couldn't transmit due to the URT-33 transmitting on 243.0. [REDACTED] then moved the switch back to its original position, but [REDACTED] was never able to successfully communicate with anyone (TAB V-8,9).

8. RESCUE: Local commercial fisherman had observed the ejection. They responded immediately and were able to pick up [REDACTED] about five minutes after [REDACTED] had entered the water. [REDACTED] felt good, talked normally and had a cigarette while enroute to the dock where a Coast Guard helicopter was waiting (TAB V-9).

9. CRASH RESPONSE: The Coast Guard was notified by the Navy Dave Range Control Officer via a land telephone call to Elizabeth City Coast Guard Station. The helicopter flew to a local boat dock and waited for the fishing boat which had picked up [REDACTED]. It took about 25 minutes for the boat to reach the dock (TAB V-7). During the rescue, Bully 01 attempted contact with [REDACTED] on UHF survival radio but was unsuccessful. Bully 01 stayed on scene directing other aircraft in the area, including Bully 03 who had arrived after the crash (TAB V-39).

10. MAINTENANCE DOCUMENTATION: A thorough review of all maintenance and engine records revealed no significant discrepancies and compliance with all safety criteria. The review of the AFTO 781 document revealed no 781X discrepancies or overdue 781D inspections (TAB H-1). While there were several 781K discrepancies, all were minor (TAB H-1, 2, 3, 4). Interviews of both aircraft and engine maintenance personnel were conducted. These witnesses had previously accomplished a thorough review of all relevant maintenance documents. With respect to the subject aircraft, no noteworthy maintenance discrepancies existed (TAB V-53, 68).

11. MAINTENANCE PERSONNEL AND SUPERVISION: All maintenance personnel were qualified and performed in compliance with applicable regulations. The accident aircraft was preflighted and launched by the normally assigned crew chief (TAB V-76). Review of the training and job records of personnel having maintenance responsibilities for the accident aircraft revealed that they were properly qualified and experienced to perform their duties.

12. ENGINE, FUEL, HYDRAULIC, AND OIL INSPECTION ANALYSIS: Review of engine inspection data showed that all inspections were current and no abnormalities existed. The last scheduled inspection was a fifty hour inspection which was conducted on 22 September 1991 (TAB D). Fuel, oil and hydraulic samples were taken and tested normal (TAB O-1, 2, 3).

13. AIRFRAME AND AIRCRAFT SYSTEMS: A review of the history of the airframe and engine was conducted. No noteworthy discrepancies existed with respect to any aircraft system. A Pratt and Whitney F100-200 engine (S/N PWOE703329) was installed in the accident aircraft on 22 June 1991. 3700.0 hours of engine operating time (EOT) existed at the time of installation (TAB J-1). The various engine modules and accessories were installed at different times (TAB J-1, 2). About two weeks after the accident (11 December 1991), the majority of the engine was retrieved intact. A summary of the damage noted is included in this report (TAB J-3, 4). Field teardown of the compressor indicated a liberated 8th stage blade probably caused by metal fatigue. The subject blade, along with other engine parts, was taken by a Pratt and Whitney metallurgist for further investigation (TAB I).

14. OPERATIONS PERSONNEL AND SUPERVISION: Mission was conducted under local flight clearance order number 226 (TAB K-3). The local order was authorized under AFR 60-16 as supplemented. The supervisor of flying (SOF) was [REDACTED]. The SOF cancelled Bully 04 prior to 0630 briefing due to a lack of aircraft (TAB V-3). [REDACTED] also coordinated with maintenance in [REDACTED] change of aircraft from aircraft 430 to aircraft 484 (TAB V-4). [REDACTED] approved Bully 03's late take-off and granted authority to join the flight at the range (TAB V-4). No deviations or discrepancies were noted.

15. CREW QUALIFICATIONS:

a. [REDACTED] is a senior pilot. [REDACTED] flying experience is summarized below (TAB G-1, 2):

F-16 Hours - 156.1
Flying Hours - 2,019.1

	Sorties/Hours
Last 30 Days	7/9.8
Last 60 Days	15/22.9
Last 90 Days	18/25.9

Last Physical - July 13 1991

Special training relevant to the events of this mission are 14 BUC Ground Starts (TAB G). [REDACTED] also briefed BUC Ground Start procedures at the August 1990 Ground Training session.

b. [REDACTED] was the flight lead. [REDACTED] is the [REDACTED] is responsible for the basic mission profiles and the unit standards for delivery parameters. This flight was a basic profile flight as approved by the Deputy Commander for Operations. [REDACTED] is one of two pilots who are qualified as instructor pilots, standardization and evaluation flight examiners, functional flight check pilots (commonly called test pilots), and supervisors of flying. (TAB V-21).

16. MEDICAL: [REDACTED] was helicoptered to Portsmouth Naval Air Station by the Coast Guard rescue unit from Elizabeth City, N.C. After ascertaining that immediate medical assistance was not warranted, the physician coordinated with the active duty Air Force at Langley Air Force Base concerning required medical tests. X-rays, toxicology requirements and the like were all administered with no unusual results.

17. NAVAIDS AND FACILITIES: Departure and enroute navaids and facilities operated normally. No notices to airmen (NOTAMS) were issued which would have effected the mission. Check-in and coordination with the gunnery range officials was normal.

18. WEATHER: The forecast weather was for cloudless skies with unrestricted visibility (TAB W-2). Witness testimony verified these conditions (TAB V-17). Outside air temperature was about 45 F. The weather conditions did not adversely affect the mission.

19. DIRECTIVES AND PUBLICATIONS.

a. Directives and publications applicable to the operation of the mission were:

1. AFR 60-1 Flight Management
2. AFR 60-16 Flight Rules
3. TACR 51-50 Tactical Fighter/Reconnaissance Aircrew Training
4. TACR 55-116 F-16 Pilot Operating Procedures
5. TO 1F-16A-1 F-16 Flight Manual
6. TO 1F-16A-1CL-1 Pilots Abbreviated Flight Crew Checklist

b. There were no known or suspected violations from the directives and publications by crew members or others involved in the mission.

Robert B. Simpson

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Aircraft Accident Investigation Officer