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NUCLEAR REGULATORY COMMISSION

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Docket No. _____ Official Exh. No. 3
 In the matter of PFS
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 DATE 4-11-02 Witness _____
 Clerk L. Shindurling

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 OFFICE OF THE SECRETARY
 RULEMAKINGS AND
 ADJUDICATIONS STAFF

AIRCRAFT ACCIDENT
 INVESTIGATION REPORT
 CRASH OF F-16C 86-0329
 AT
 DIYARBAKIR AIR BASE, TURKEY
 20 FEBRUARY 1991

57124

PFS-39425
Template = SECY-028

SECY-02

I. AUTHORITY AND PURPOSE

Pursuant to Headquarters, Sixteenth Air Force, message dated 11 March 1991, Lieutenant Colonel Andy C. Denny, 39 TACG/ADO, was appointed to conduct an accident investigation into the circumstances surrounding the accident involving F-16C Aircraft 86-0329, 401 TFW, Torrejon Air Base, Spain, (TAB 4). The accident occurred on 20 February, 1991 near Diyarbakir Air Base, Turkey (TAB A).

The investigating officer complied with AFR 110-14 and administrative procedures were in accordance with AFR 120-3. The objective of this investigation was to gather all relevant evidence concerning the mishap. This evidence may be used in claims adjudication, litigation, disciplinary actions, adverse administrative procedures and for all other procedures other than accident prevention.

II. MATTERS INVESTIGATED

Formal investigation by the Investigating Officer and Legal Advisor began at Incirlik Air Base, Turkey, on 11 March 1991 and included a trip to Torrejon Air Base, Spain from 18-22 March 1991. The investigation then resumed at Incirlik Air Base until completion. The specific areas investigated included:

- a. Mission, Briefing, Profile, and Events
- b. Authority for Flight
- c. Communications
- d. Pilot Experience
- e. Search and Rescue
- f. Ejection Facts
- g. Aircraft Component Facts
- h. Pilot Facts
- i. Supervisory Facts
- j. Medical
- k. Weather
- l. Maintenance Documents
- m. Accident Scene
- n. Directives and Publications

III. SUMMARY OF FACTS

- a. Mission, Briefing, Profile, and Events

September 1990, the 612 TFS, 401 TFW, Torrejon AB, Spain, deployed to Incirlik Air Base, Turkey as part of the deployed forces for Operation Desert Shield. Capt Brock Strom was originally assigned to the 613 TFS, but later was reassigned to the 612 TFS and deployed to Incirlik AB to serve as the Squadron Weapons Officer. After Operation Desert Storm commenced in mid-January 1991, Capt Strom flew regularly as a flight leader, instructor pilot, and frequently was the mission commander for surface attack packages. The following synopsis of the events is based on testimony from Capt Strom and his wingman, 1Lt Taylor (TAB V-2 thru V-13).

On 20 February 1991, Capt Strom was scheduled to fly as a four-ship flight lead and alternate mission commander for a strike package including numerous combat aircraft from Incirlik AB, Turkey. The briefing for the flight was performed by the mission commander in accordance with established format and procedures during combat operations. The general scenario for this mission included: single-ship takeoffs, rejoin, air refueling, ingressing the target area, weapons delivery, egressing the target area, possible air refueling (if required) and return to Incirlik AB.

Captain Strom was assigned aircraft F-16C 86-0329 for this sortie. All ground operations were normal. Takeoff, climb out, and rejoin were all uneventful (TAB V-2). Capt Strom was using the call sign Baretta 1 for this mission. After his flight had completed their air refueling, they were positioned to the right and aft of the tanker waiting for others to refuel. After takeoff 38 minutes and 55 seconds elapsed with only normal, routine flight operations (TAB 0-8). At that time Captain Strom's aircraft experienced a catastrophic engine failure that eventually resulted in his successful ejection and the crash of the aircraft near Diyarbakir Air Base, Turkey.

Captain Strom testified (TAB V-2) that he heard a "big boom" and felt his aircraft vibrate. His first thought was that he had hit something or that something had blown up on his wing. When this all occurred, he stated that he was at a stable throttle setting (approximately mid-range), 18,000 feet above mean sea level (MSL) [16,000 feet above ground level (AGL)], and at approximately 310 or 320 knots indicated airspeed (KIAS). A quick check of the weapons on his wings confirmed that there was no problem there. His engine indications at first did not reveal engine problems, but he could tell that he was losing thrust since he was falling back from the other aircraft and the engine sounded like it was "chugging." He then informed the others in the formation that he had lost an engine and asked for a snap vector to Diyarbakir AB realizing that he was near there and that it would be to his left (north) but he couldn't see it yet. Baretta 4 told him to turn left to north (360 degrees). He (Baretta 4) had monitored the flight's position and was tuned to the Diyarbakir AB TACAN channel. Baretta 1 immediately started the left hand turn and started descending toward the airfield. Baretta 2, 1Lt Taylor, (TAB V-9) followed him and informed him that he saw a flame and smoke come out of his engine. The engine continued to run "rough" so Captain Strom elected to select secondary engine control (SEC) in an attempt to regain normal operation. This action did not change the "rough, chugging" engine operation. Engine oil pressure was about 40 pounds/square inch (PSI), the nozzles were closed, and the revolutions/minute (RPM) was fluctuating between 60 and 70 percent. At this time Captain Strom could see the ground and determined it was safe to jettison his wing fuel tanks and ordnance to reduce

the drag enhancing his glide potential. Everything separated from the aircraft cleanly. Next Capt Strom focused on attempting to restart his engine. He turned his jet fuel starter (JFS) on, positioned the throttle to OFF, paused for a couple of seconds, then placed the throttle back to the mid-range position. Normal engine operation was still not achieved, however. Capt Strom made contact on the radio with Diyarbakir Control Tower at approximately 15 nautical miles (NM) south of the base and informed them that he was engine-out and would be coming in to land. After some initial confusion (script, TAB N), Baretta 1 was cleared to land on Runway 34.

Baretta 1 had been unable to see the airfield up to this point since there were scattered-to-broken clouds beneath him obstructing his view. He had been in clear air throughout this incident so far. The weather became a little disconcerting to Capt Strom since he must decide when to lower his landing gear. Without the ability to visualize a glidepath (airfield not in sight), he was uncertain whether lowering the landing gear above the clouds would adversely affect his glide potential. Conversely, he was not sure how low the clouds were or how much time he'd have to lower the landing gear after acquiring the runway when below the clouds. As he approached the clouds, he decided to lower the landing gear. He traveled one-two miles while in the clouds (30 seconds, TAB O-9). As soon as he passed through the clouds, he saw the airfield. He raised the landing gear quickly in an attempt to increase his glide potential. Additionally, even though his engine was operating in SEC (with no apparent thrust), he decided to try initiating afterburner without success to increase his thrust. It was now readily apparent to Captain Strom that he could not glide to the runway so he concentrated on preparing for ejection. He checked his flight path and determined that there was nothing to harm, no inhabited areas or buildings. He double checked that his ejection seat was armed and informed the tower and his wingman that he was bailing out. Passing approximately 300 feet AGL, he ejected. The ejection worked as designed.

b. Authority for Flight

The mission was properly authorized as annotated on USAFE Form 406 (TAB K).

c. Communications

Radio transmission information was available to the Investigating Officer in the form of a script provided from the Air Traffic Control Tower Tapes at Diyarbakir Air Base between the mishap pilot and the Tower personnel (TAB N), the chase pilot's video tape recorder, and pilot testimonies (TAB V). Examination of the Tower Script revealed a relatively unremarkable exchange of communications. Examination of the video tape recorder verified the accuracy of the script from the tower tapes.

In his testimony (TAB V-2, 3), the mishap pilot applauded the professionalism of his flight members and others in the formation. He received very timely calls from a wingman (Baretta 4) that gave him a quick heading and distance to the nearest divert airfield immediately after recognizing his critical situation. Another flight member quickly provided the Diyarbakir Air Base Tower frequency as well. Everyone else remained silent.

h. Pilot Facts

The mishap pilot was current and qualified in the F-16C at the time of the mishap (TAB G-3). He was authorized to fly the mission (TAB K-1) and was in crew rest. His 72-hour profile prior to the mishap flight indicates he was fit for the flight.

i. Supervisory Facts

Not investigated.

j. Medical

Captain Strom was medically qualified for flight duty on 19 Mar 90 (TAB G-3).

k. Weather

The weather report at the time of the mishap was Visual Meteorological Conditions (VMC) with no restriction to visibility at altitude. Forecast weather information is at TAB W.

Captain Strom and Lt Taylor testified that the flight was in the clear at FL180 (16,000 feet AGL) with good visibility. There was, however, a scattered-to-broken cloud layer below them (approximately 4/8 coverage) beginning at approximately 4,000 feet MSL with the bottoms at approximately 1,000 feet AGL (TAB V-10, N-1). Surface winds were reported by the Diyarbakir control tower to be 360 degrees at 10 knots. Captain Strom indicated in his testimony that the partial cloud cover prevented him from seeing the runway until he was below the clouds.

l. Maintenance Documents

All aircraft forms were available and reviewed for the aircraft (86-0329) and the engine. All inspection items on the aircraft and engine were current. The last 75-hour borescope was accomplished on 11 February 1991 at 1195.4 engine hours. A mini borescope inspection was performed during the Number 4 phase inspection on 13 February 1991, no defects noted (TAB V-20). Red X's were cleared by qualified and certified personnel. Exceptional releases were correctly performed and signed off (TAB H-1). Preflight and servicing requirements were documented prior to the mishap flight. Oil sample procedures and magnetic chip detector inspections were accomplished and properly documented after each flight. The AFTO Form 781 series was complete and properly maintained (TAB H-1).

m. Accident Scene

TAB 2 contains a diagram of the accident scene. The distance from the initial impact of the aircraft to the runway at Diyarbakir Air Base was 3238 feet. The pilot landed approximately 600 feet from the initial impact point.

TAB 0-10 contains a detailed report of the Explosive Ordnance Disposal actions taken to secure and render safe all explosive items.

TAB P contains a statement of claim/damage for the mishap. The impact occurred in an agricultural field absent of visible germinated crops. The 39 TACG/JA has provided the landowner of the crash site with the appropriate forms to be filed with the Turkish General Staff for processing any claims under the NATO Status of Forces Agreement procedures.

n. Directives and Publications

The directives and publications applicable to the operation of the mission were:

AFM 51-37

AFR 51-50

AFR 55-79

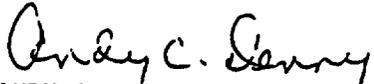
AFR 60-1

AFR 60-2

AFR 60-5

AFR 60-16

USAFER 55-116


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Investigating Officer