NAME
NOM [redacted]

NO

0276

Wabush
11 Nov. 1969

TRANSPORT CANADA

JTC,
CIVIL AVIATION BRANCH

AIRCRAFT ACCIDENT INVESTIGATION DIVISION

AIRCRAFT ACCIDENT REPORT

DE HAVILLAND 125 CF-CFL
NEAR WABUSH, LABRADOR
11 NOVEMBER 1969

C A N A D A

DEPARTMENT OF TRANSPORT

AIRCRAFT ACCIDENT INVESTIGATION DIVISION

A C C I D E N T R E P O R T 4 6 2 7

Aircraft Type	Registration	Date/Time
DH-125	CF-CFL	11Nov69 1832 AST

Place	Lat.	Long.
7 miles north of Wabush, Labrador	53/03N	66/54W

A DH-125 executive jet carrying eight persons on a flight from Churchill Falls, Labrador, struck the rock face of an open-pit mine during a night instrument approach to Wabush Airport, Labrador, killing all on board.

	Total	Fatality	Serious Injury	Minor Injury
Crew	2	2		
Passengers	6	6		
Others				

DESCRIPTION OF THE OCCURRENCE

The aircraft departed Churchill Falls, Lab. at 1800 hrs Atlantic Standard Time, for a planned 20-minute night flight to Wabush, Lab. During the climb the crew received from Moncton air traffic control centre the current Wabush weather: cloud, 700 feet scattered; ceiling, 1000 feet overcast; visibility 10 miles in light drizzle. The weather was deteriorating but remained above the approach minima.

As it neared destination, Moncton Centre cleared the aircraft to the Wabush airport to perform an ADF approach on the "Whiskey-Kilo" beacon - a cancelled procedure. This clearance was acknowledged and read back by the copilot. Figure 1 shows the locations of the two Wabush beacons - WK and WZ. The WK is an airway beacon; however, the only currently approved instrument approach procedure at Wabush was based on the WZ beacon.

At 1829 hrs the pilot reported to the tower that he had crossed the beacon and was on the final phase of the approach to the runway. Minutes later, eyewitnesses saw the aircraft north of the WK beacon clear of cloud on a northerly heading.

Figure 1 shows that flying the approved approach procedure on the WK beacon rather than on the WZ resulted in a 6-mile northward displacement of the approach pattern. Having crossed over a beacon that the pilot apparently assumed incorrectly to be south of the field, he was now flying at his minimum approach altitude expecting to see the runway ahead. Routine transmissions from the aircraft were heard moments before the impact. The aircraft crashed 5.5 miles north of the WK beacon into the rock face of a lighted open-pit mine, killing all eight persons on board.

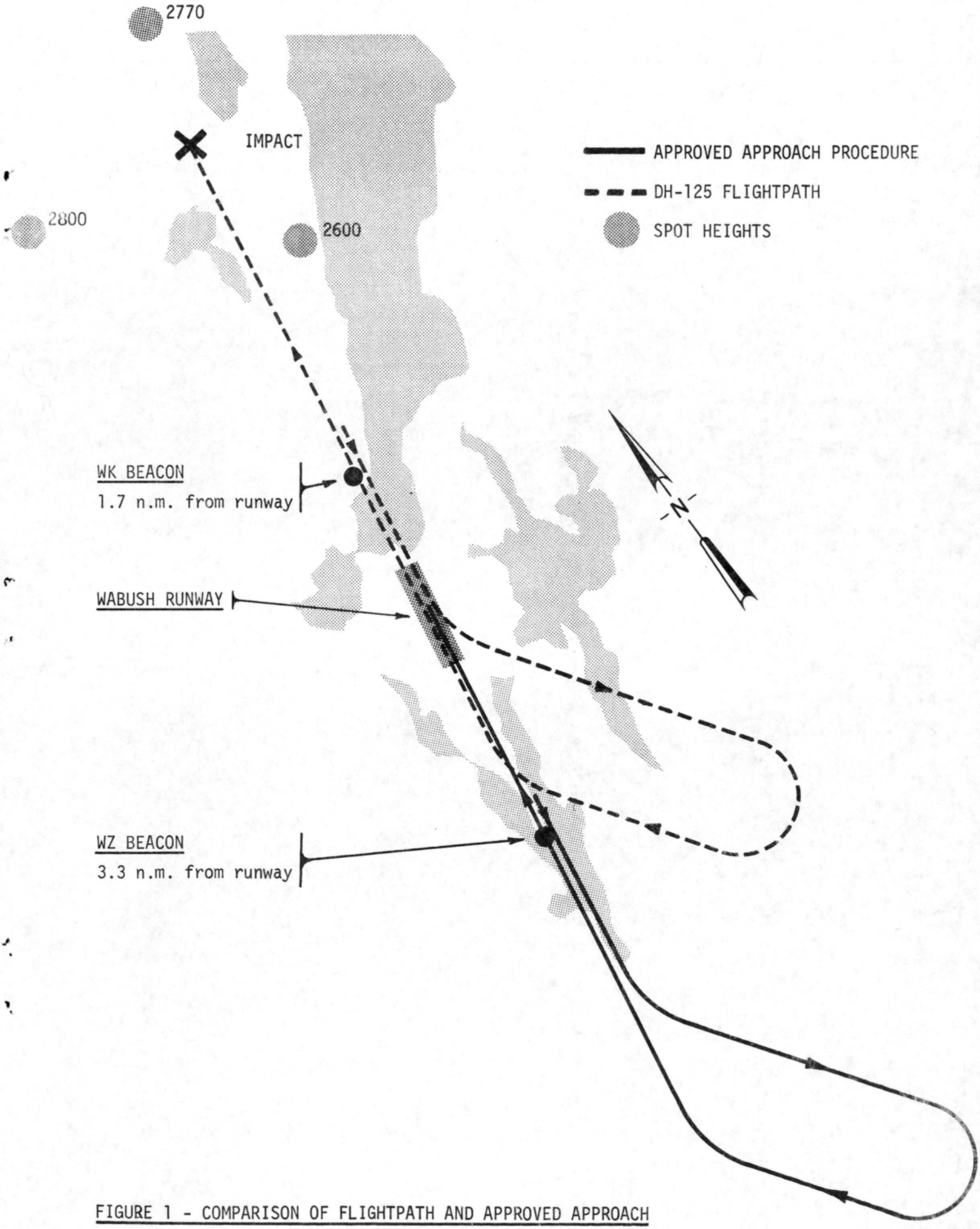

FIGURE 1 - COMPARISON OF FLIGHTPATH AND APPROVED APPROACH

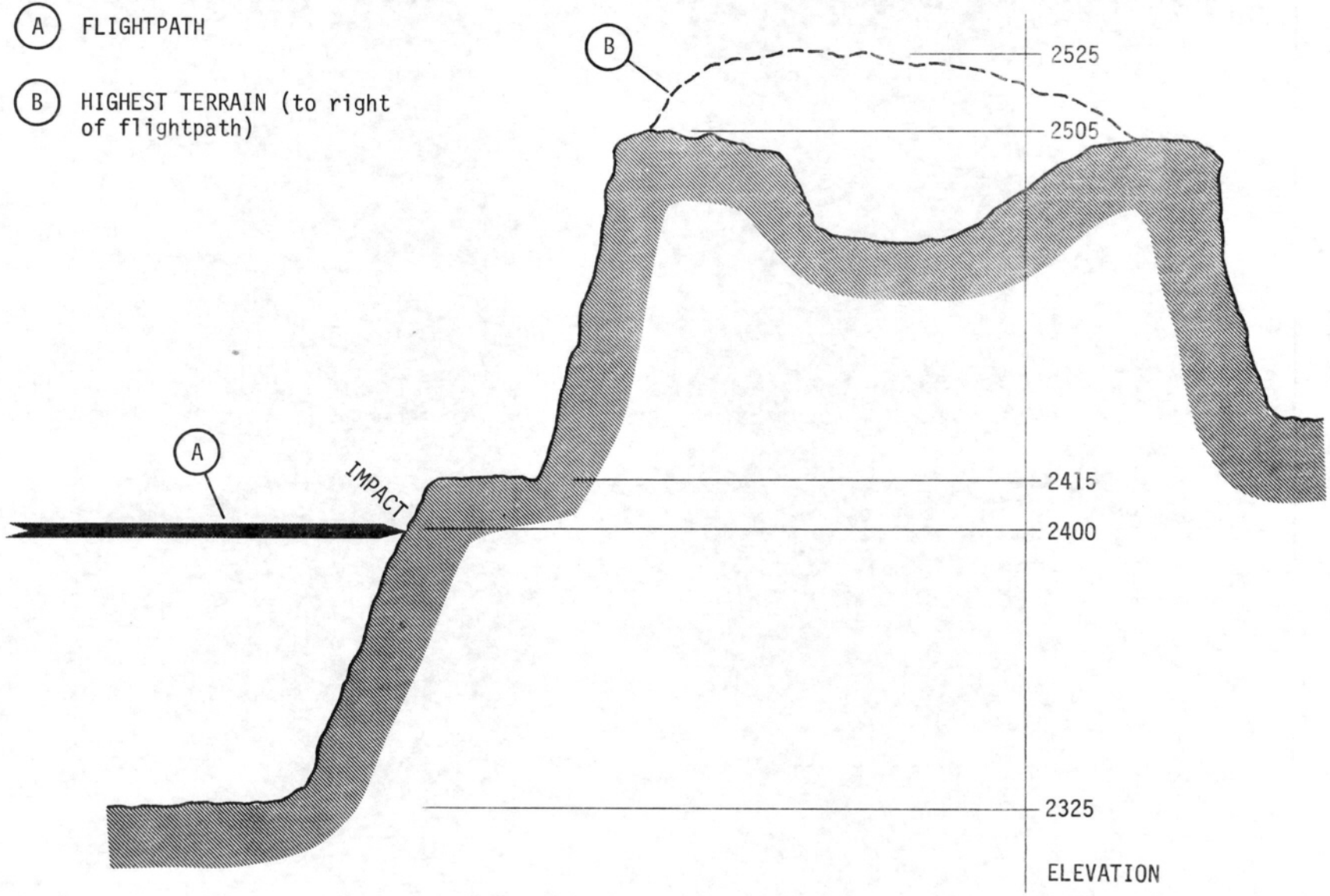

FIGURE 2 - CROSS-SECTION ALONG FLIGHTPATH

FINDINGS

1. The air traffic control agency cleared the pilot to perform an approach procedure cancelled 6 months before - a procedure of which he, as an itinerant pilot with an up-to-date approach publication, would probably have no knowledge.

2. One of the aircraft's two ADF sets had been unserviceable during this and preceding flights. The flight plan specified a fuel endurance limiting the flight to a region in which there were only non-directional navigation aids. For this flight, under instrument flight rules two serviceable ADFs are required (ANO Series V, No. 22, Para 5).

3. The copilot received and accepted the incorrect clearance. Since the copilot did not hold an instrument rating, there was no proof of competence relevant to instrument flight procedures. His effectiveness as a copilot on an IFR night flight, in a high speed jet aircraft, could have been limited as a result of his relative inexperience.

4. There was evidence of uncertainty among some pilots and the ATC centre staff as to whether the WK procedure had in fact been cancelled. The cancelled procedure page of the Canada Air Pilot had been retained and used routinely by the air traffic control centre and some pilots.

ASSIGNED CAUSE(S)

- The pilot was cleared by the air traffic control centre to perform a cancelled approach procedure.
- The pilot performed the currently approved procedure on the wrong beacon.

SCOPE OF THE INVESTIGATION

1. Operational Aspects

Witness reports and examination of the wreckage established that the aircraft was in a level flight attitude at impact.

The aircraft was operated by Atlantic Aviation Ltd., for the owner - Churchill Falls Corporation Ltd. Under the contract terms, Atlantic Aviation was to provide an experienced and qualified flight crew, and to conduct all operations in conformity with applicable orders and regulations of the Department of Transport.

There was no record that either pilot had landed previously at Wabush; however, both pilots had an opportunity to study the approach chart in the ample time available before the flight. It should be noted that it was the copilot who received and accepted the clearance; also, the incorrect clearance was not challenged by the Captain.

The evidence indicates that the pilot performed the current WZ approach procedure on the WK beacon. In reporting outbound, the crew gave their altitude as 4100 feet during this phase. Had the approach been flown on the WZ beacon south of the airport, it is likely that the tower controller would have seen or heard the aircraft pass by at minimum altitude. The flightpath and timing - as noted by witnesses - are consistent with the approved approach pattern having been performed on the northerly WK beacon.

There was evidence of uncertainty among some pilots and the ATC centre staff as to whether the WK procedure had in fact been cancelled. Some inconsistency in the terms of amendment directions used in amendment sheets for the Canada Air Pilot may have contributed to this uncertainty. However, it is difficult to understand how its continued use for six months after cancellation, had not been brought to light.

There was also evidence that some pilots knowing the procedure had been cancelled, had retained and employed it. In some cases, the person amending the Canada Air Pilot had retained the sheet itself and marked it as not current. The continued use of this procedure by the ATC centre led other pilots to believe that it had not been cancelled.

2. Tests and Technical Analysis

All information gained from the thorough examination of the wreckage both at the site and in the laboratory indicate that the aircraft was functioning normally at impact.

3. Crew

The pilot, James E. MacLeod, held an Airline Transport pilot licence with a Class I instrument rating; of his 4800 hours total he had flown 1200 hours on type. His licence had been invalid for three weeks prior to the accident because of an overdue electrocardiogram examination.

The copilot, Robin P. Elley, held a Commercial pilot licence endorsed for the DH-125; he did not possess an instrument rating. His total flying experience was 350 hours, including 27 hours on the DH-125. After receiving a Private pilot licence in August 1967, he continued training and qualified for a Commercial licence in October 1968. The DH-125 endorsement was dated 25 July 1969. Of the 29 hours logged instrument flight, 8 hours was verified as dual instruction. He had considerable time in the aircraft as third crew member as a Technical Representative of the aircraft manufacturer.

After an adequate rest period, both pilots had been on duty approximately 9 hours before the accident, and had flown 2:45 hours.

The voice transmissions of the copilot appeared normal throughout the approach. However, postmortem biochemical tests indicated that he experienced a marked adrenergic response, symptomatic of considerable stress. There was no evidence of any factor which would have induced this condition.

4. Aircraft Information

The aircraft had been in service only three weeks and had accumulated a total of 53 hours. There was no evidence of malfunction and the aircraft load was within limits.

Since its introduction, this aircraft type had characteristic ADF unreliability under some precipitation conditions. New-design ADF equipment had been installed; one set had been flight tested under adverse precipitation conditions and functioned satisfactorily. The other set had remained unserviceable since installation as no replacement was available. If the ADF had malfunctioned, the flightpath would have differed from that observed in this accident. Also, the routine calls during the approach indicated no irregularity in timing or the approach pattern. The control heads for the ADFs have a visual digital presentation of the selected frequency. This device de-emphasizes a pilot's awareness of identification symbols in the beacon signal by enabling him to "tune" the beacon without aural identification.

5. Meteorological Information

Weather deterioration just prior to the accident resulted in a special observation of: thin obscured, measured 900 feet overcast; visibility 2 miles in light drizzle and fog. However, the weather remained above the minima for this approach.

6. Aids to Navigation

All operating normally.

7. Communications

Communications equipment were functioning normally.

8. Witnesses

Witness information is incorporated in the report.

9. Aerodrome and Ground Facilities

Not directly involved.

10. Flight Recorder

The aircraft was not equipped with recorders.

11. Wreckage

The approach procedures publication was found; the undamaged sheets immediately preceding and following the Wabush page were adjacent, indicating that the Wabush approach chart was probably in use in the cockpit. The approach sheet itself was not found although the book was amended up-to-date.

12. Fire

There was no fire prior to impact.

13. Survival Aspects

Destruction was instantaneous and catastrophic.

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Aircraft Accident Investigation
Division