



# Interagency Aviation Lessons Learned



No. IALL 07-02

February 15, 2007

Page 1 of 2

**Subject:** Interagency Aviation Lessons Learned

**Area of Concern:** Aviation Operations

**Distribution:** To All Aviation Users

**FY 06 Accident #3**

**Aerospatiale SA-319B  
Alouette**

## *What Happened.*

On December 14, 2005 an SA-319B Alouette was destroyed and four passengers were injured in an accident when the helicopter encountered a destructive level of ground resonance while landing on a rock outcropping.

The investigation determined that faulty maintenance practices on the part of the aircraft owner and the Director of Maintenance contributed to the frequency and severity of the ground resonance and that the pilot's selection of the landing area and his inappropriate reaction to the emergency directly resulted in the resonance progressing to a destructive level.

This accident also involved several errors on the part of DOI employees that if not addressed could contribute to future accidents.

**Lessons Learned.** The frequency of ground resonance was so common in this helicopter that virtually everyone in the unit had experienced it at one time or another. In fact, how to react when ground resonance occurred was part of the unit's pre-season training. What was missing was that **no one ever submitted a SAFECOM, no one contacted a maintenance inspector, and no one notified the Bureau's State or National Office.** Without a phone call, a SAFECOM, or a series of SAFECOMs, maintenance inspectors could not intervene to correct the problem and the unit was playing a waiting game for the inevitable accident.

The operational area for this mission was extremely remote and rugged, and the accident site was an unimproved, out-of-ground-effect, off-site landing area that was particularly hazardous for a helicopter prone to ground resonance due to its size, slope, and surface. However, the organization's Project Aviation Safety Plan identified this as a low risk mission and that the landing areas were pre-identified as either "adequate" or "improved to minimum standards." The Project Aviation Safety Plan, by failing to accurately identify the hazards in the operational environment, made it impossible to assess the level of risk or to develop effective control measures. Mitigation efforts such as cutting down trees and brush to provide a better landing area or using other techniques to accomplish the mission would have reduced the risks but were not implemented, in part because the mission had been erroneously classified as low risk. This is a **Risk Management** failure on the part of the organization.

*Lessons Learned.*

There were two lessons to be learned regarding aviation life support equipment (ALSE). First and foremost, four of our comrades are alive today because the proper use of flight helmets protected them when a main rotor blade (or other components) struck them during the accident sequence. While we are happy that these helmets did their job and protected our people, we learned a lesson after the accident when ten other helmets from this unit were inspected by BLM Ramp Services technicians, eight of the ten helmets were found to be unserviceable due to cracks in their shells.

The second ALSE lesson involves a decision by the helicopter manager to allow unauthorized boots to be worn by two of the passengers who arrived at the remote site after driving for more than two hours. The manager evaluated the situation and determined that to make the passengers go back for the proper footwear would terminate the mission and that the chance of having an accident or getting caught was remote. This is a tough, but typical, risk decision similar to those faced by many of you on a day-to-day basis. A much better decision, one that is fully supported in Operational Risk Management doctrine, would have been for the manager to elevate this unforeseen and higher risk to a more senior decision maker.

The phrase “Everyone knew, but...” best summarizes this accident. Most of the passengers knew that the aircraft was prone to ground resonance. However, the pilot had always successfully avoided serious damage in the past and had misrepresented the significance of the resonance. Aviation personnel knew that a SAFECOM should have been submitted, but it was just the way that helicopter was. Everyone knew that the landing areas were risky, but they had all landed in worse spots. Aviation personnel knew that all-leather boots were required, but was it worth canceling a mission?

This accident could have been prevented:

- If the vendor had properly maintained his aircraft in accordance with FAA and manufacturer instructions.
- If those people who knew ground resonance was occurring had reported it via SAFECOM or directly to a DOI or USFS maintenance inspector.
- If management had accurately identified the hazards and mitigated the risks in the Project Aviation Safety Plan.

/s/ Robert Galloway  
Robert Galloway  
Aviation Safety Manager

/s/ Ron Hanks  
Ron Hanks  
National Aviation Safety  
and Training Manager