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Helicopter Logging: Alaska's Most Dangerous Occupation?

Due to their unique capabilities, helicopters have found a niche in the logging industry. In recent years, they have enabled harvesting of otherwise inaccessible areas. For this reason, their use in "aerologging" has been steadily increasing in Southeast Alaska. Such operations, however, are not without risk.

Six logging-related helicopter crashes occurred in Southeast Alaska during the 16-month period, February 1992 through May 1993, resulting in nine worker fatalities and ten seriously injured workers. In one incident, a sling-load helicopter crashed while carrying nine loggers as passengers; the copilot and five loggers were fatally injured, and the pilot and four other loggers were seriously injured. Two other sling-load helicopter crashes resulted in three deaths: a pilot and copilot in one crash, and a solo pilot in the other crash.

Currently, an estimated 25 helicopters conduct sling-load logging operations in Alaska. These six crashes and the nine fatalities are equivalent to a 19% annual crash rate and an average of 0.29 deaths per sling-load helicopter in service per year. The crashes involved two helicopter logging companies and Bell helicopter types 204B, 206, and 214B-1.

The aerologging industry in Southeast Alaska is very active. The helicopters are maintained "on site" by company mechanics and move frequently to different locations as needed to move timber. The helicopters usually fly approximately one hour between refuelings. The mechanics routinely inspect the helicopters during refueling as well as after the day's flights. The helicopters conduct a "load/lift cycle" [pick up log(s), transport, drop-off, return to pickup site] in approximately 1-3 minutes. Some operators have reportedly continued these cycles throughout two shifts per day.

Because of the high crash rate of helicopters conducting logging operations and the disproportionately high number of worker injuries and deaths, the Federal-State Interagency Collaborative Working Group on the Prevention of Occupational Traumatic Injuries* met in Anchorage on July 8, 1993 to discuss possible interventions and recommendations to reduce the occurrence of helicopter sling-load logging crashes.

The working group found that there are no formalized training programs required for helicopter sling-load logging operations. Crash investigation teams examining evidence were advised by manufacturers that the operating standards in use did not comply with manufacturers' recommendations. Based on these and other findings, the following recommendations were made:

Recommendations for Sling-Load Helicopter Logging

1. To ensure pilots are familiar with the conditions and operations unique to helicopter logging, all pilots should receive specific training in sling/load operations.
2. To reduce the likelihood of mechanical failure due to frequent load/lift cycles, manufacturers' recommendations for more frequent maintenance under such conditions must be followed.
3. All manufacturers' specifications for maximum allowable loads should be followed at all times.
4. To reduce the effects of fatigue, and ensure an alert and properly rested crew, operators should establish and observe appropriate limits on crew flight time and duty periods.
5. Operators should consider the additional safety factor of using multi-engine rotorcraft.
6. To enhance industry-wide safety, specific operating standards and procedures should be developed.
7. Companies should improve and maintain on-site emergency medical training, including CPR, for helicopter logging crews at all work locations in accordance with the recommendations for "At Risk Sites" in the 1993 Alaska EMS Goals document.
8. State, regional, and local agencies involved in EMS education should make low cost relevant emergency medical training available to individuals likely to work in a helicopter logging environment.
9. All flights should include at least the following survival equipment for all flight crew and passengers: anti-exposure suits, life raft, land survival gear, and personal flotation devices to be worn at all times when flying over water.

*This group consisted of representatives from the Alaska Department of Health & Social Services (AKDHSS), Alaska Department of Labor (AKDOL), Federal Aviation Administration (FAA), National Institute for Occupational Safety and Health (NIOSH), National Transportation Safety Board (NTSB), Occupational Safety and Health Administration (OSHA), U.S. Coast Guard (USCG), and U.S. Forest Service (USFS).