FY06 Forest Service Aviation Accident Review

Introduction

Information Sharing

- NTSB states that “Parties to the investigation may relay to their respective organizations information necessary for purposes of prevention or remedial action. However, no information concerning the accident or incident may be released to any person not a party representative to the investigation before initial release by the Safety Board without prior consultation and approval of the IIC.

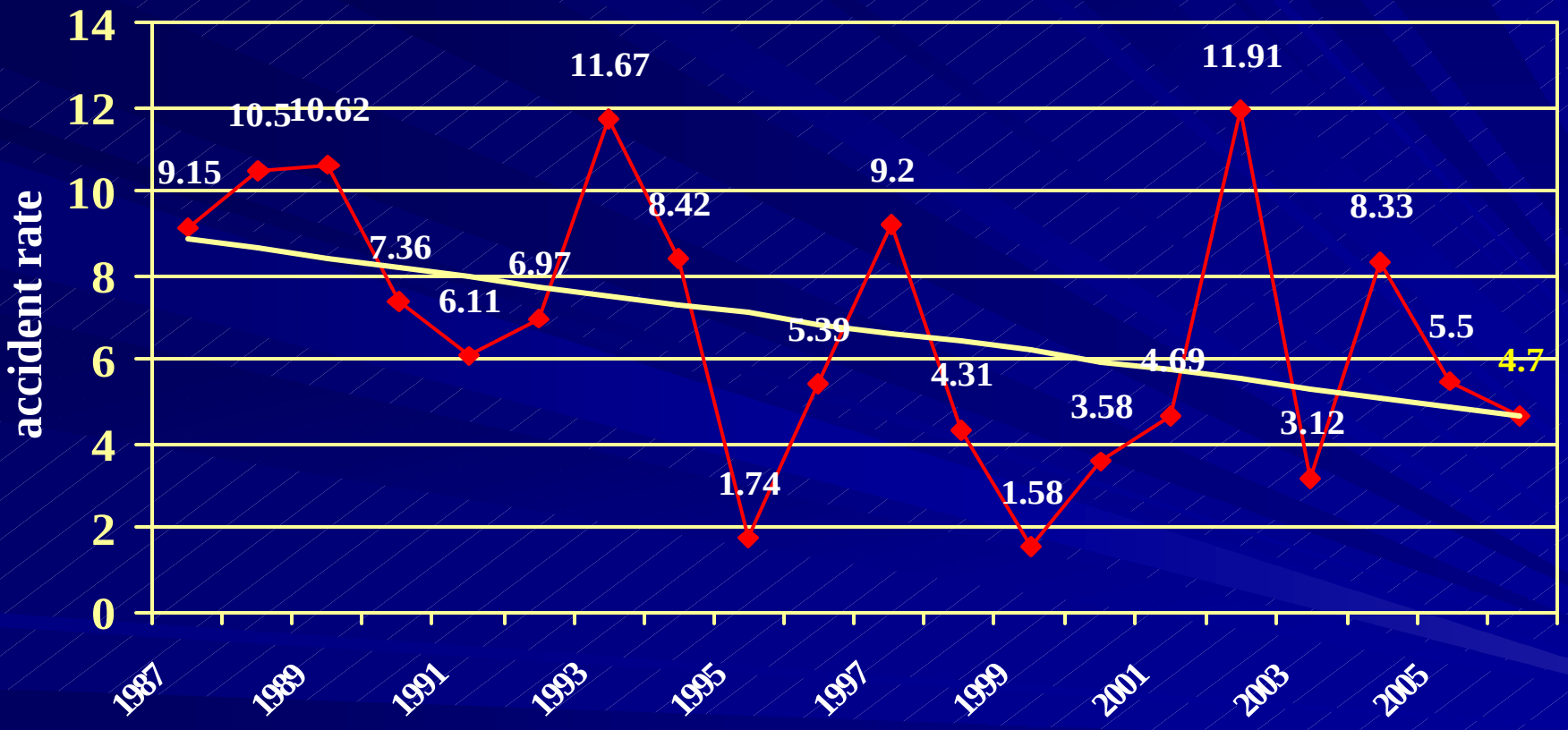
Introduction

The NTSB has not finalized all or determined probable cause for all of the accidents at this time.

This is preliminary information, subject to change, and may contain errors. Any errors in this report will be corrected when the final report has been completed

For accident prevention purposes only

Accident Rates 1987 to 2005



100,000 Hour Accident Rate

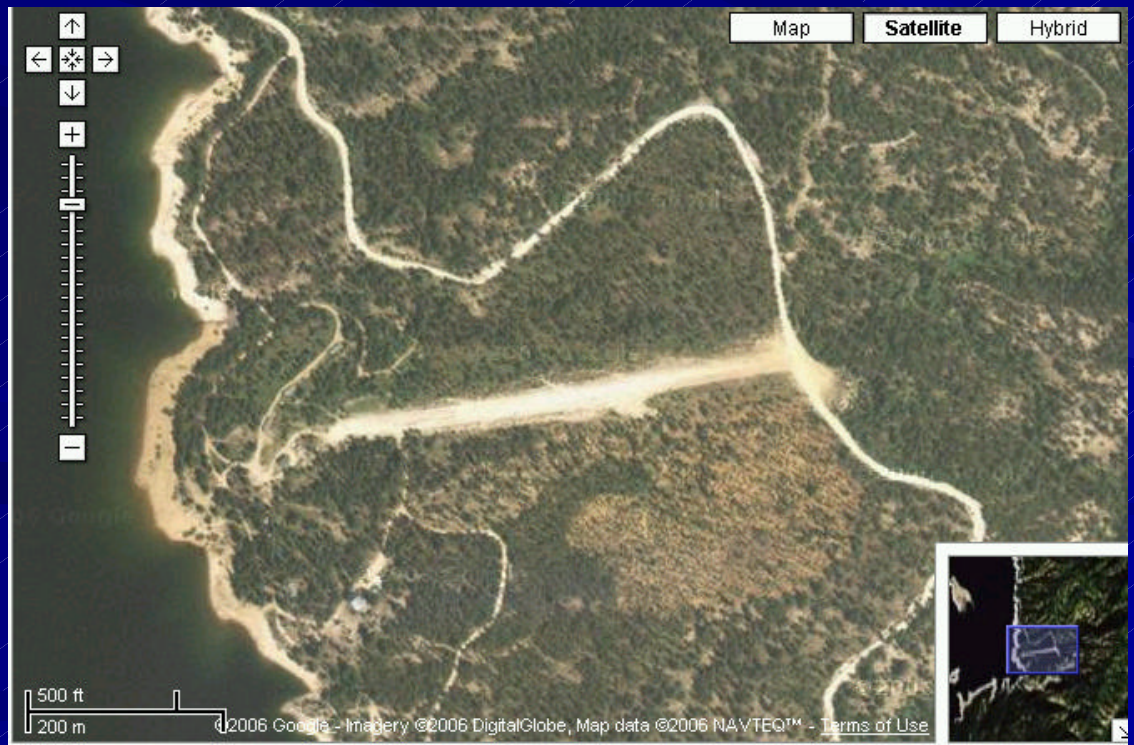
2006 Estimated Accident Rate

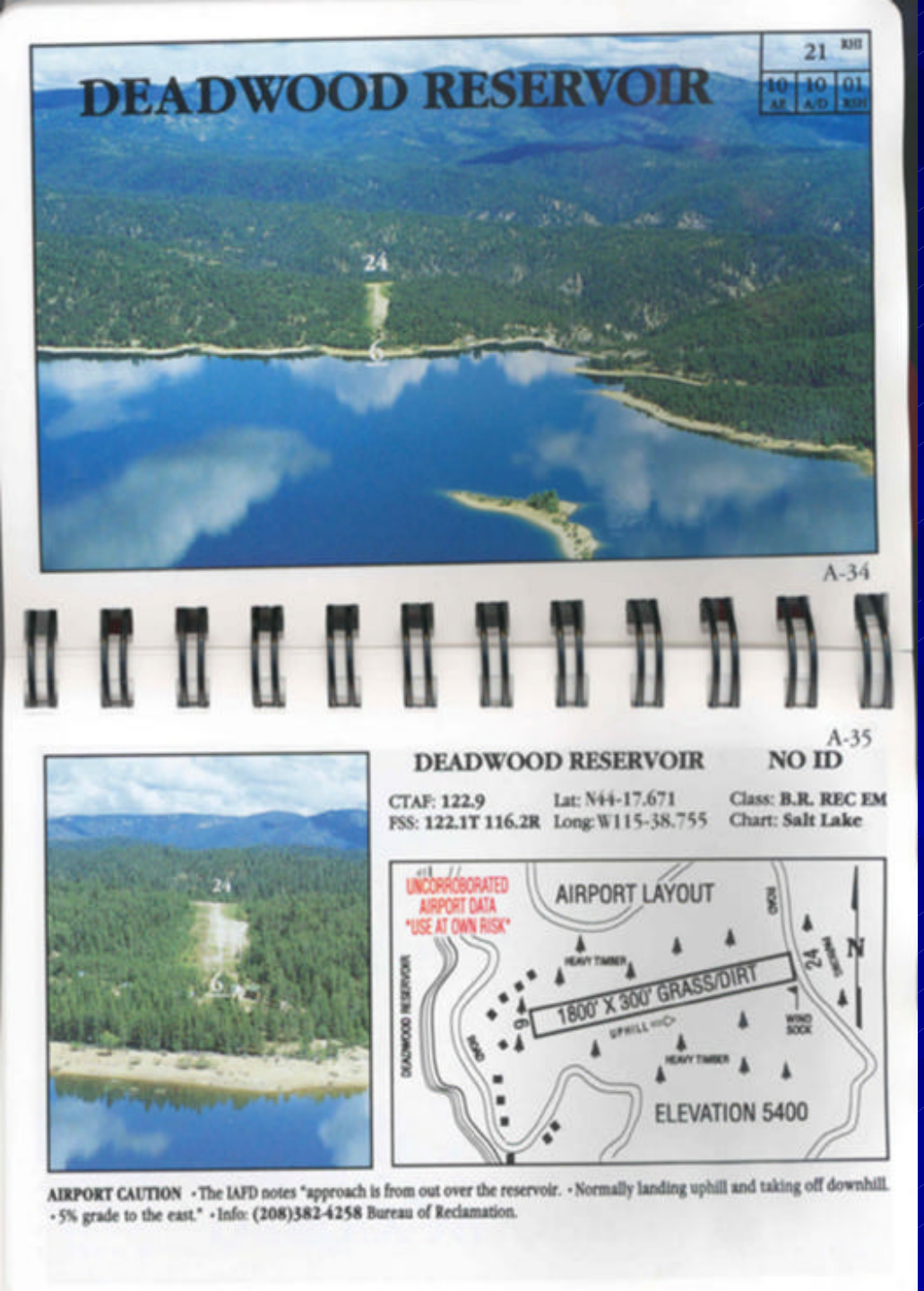
NTSB Identification: **SEA06TA152**
Date: Friday, July 28, 2006 at Deadwood Reservoir
Region 4, Boise NF
Aircraft: Cessna TU206G, N181AM
Injuries: None

Mission

Forest Health Protection (FHP) aerial sketch-mapping mission of the Landmark Basin area.

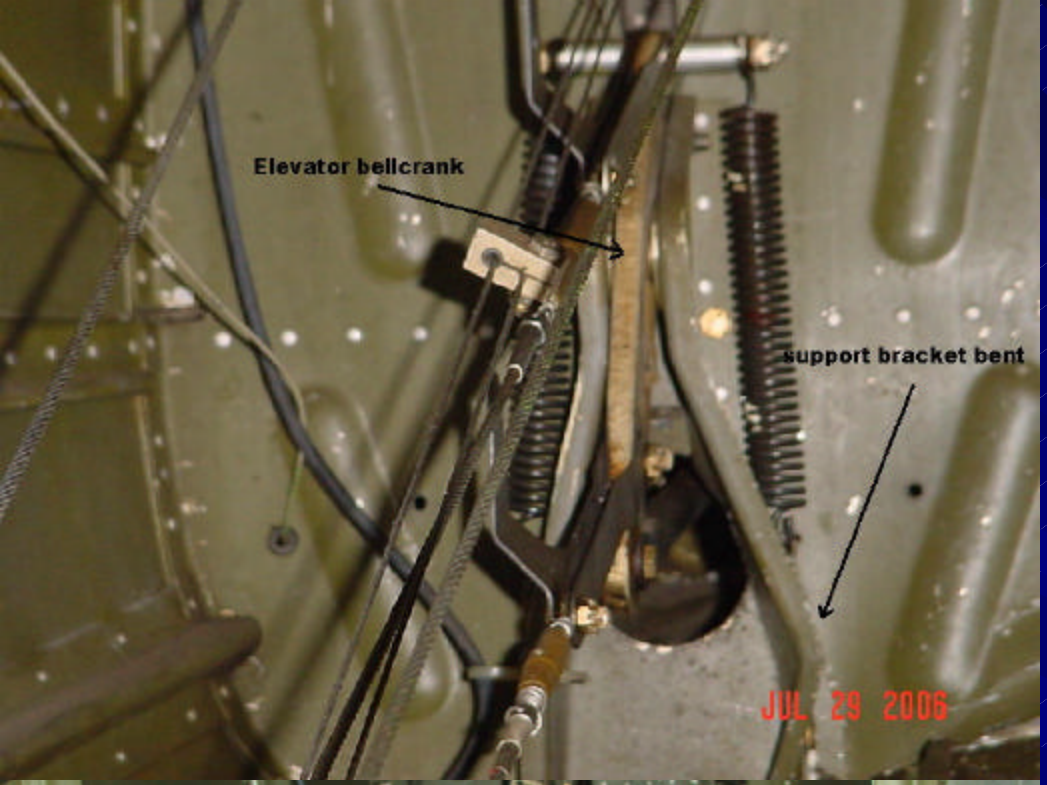
At approximately 0855 MDT the Cessna TU206G departed Boise, ID with one Forest Service employee on board to conduct aerial mapping of the Landmark Basin area. The aircraft was flight following with the Boise Interagency Logistics Center (BILC) utilizing Automated Flight Following. They decided to land at the Deadwood Reservoir Airstrip for lunch.



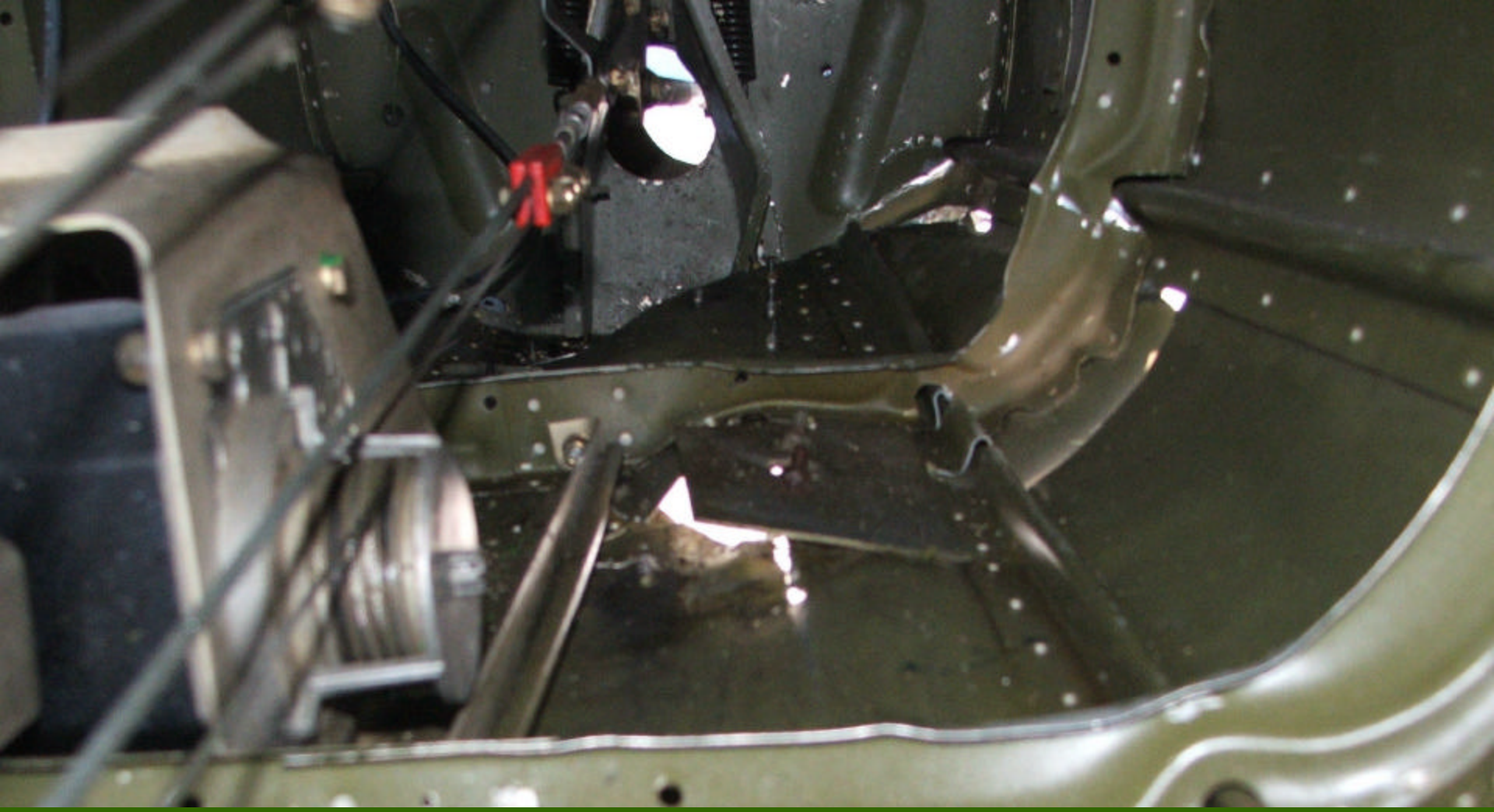


The pilot of the aircraft stated that on final approach to the airstrip approximately 50 feet above the runway the aircraft instantly sank. He applied full power, however, in spite of the full power the aircraft continued to sink straight down to the runway.

The aircraft hit hard enough to bounce the aircraft about 20 yards and right of the centerline of the airstrip and the right wheel went into a ditch. The Pilot applied left full rudder and left brake. The wheel came out of the ditch but the tail hit the ditch berm.



After the aircraft came to rest the pilot shut down the aircraft and inspected the aircraft for damage. The pilot is a FAA licensed Airframe and Powerplant mechanic. The pilot discussed the extent of damage to the FS employee and convinced the FS employee that they had no significant damage that would hinder flight capabilities.



The pilot and FS employee got back on board the aircraft and then flew the aircraft to Cascade airport (approx 15 min. away). The FS employee stated there were no communications available from the airstrip. After landing in Cascade, the FS employee notified the Regional Aviation Safety Manager of the mishap.

Damage was limited to the left side tail section below the level of the horizontal stab. Bulkhead frames and a few stringers were damaged and bent. The exterior skin in this area was also damaged as well as the skin on the underside of the tail cone.

There was no damage to any flight controls, cables, or wing surfaces. A bracket that holds a pulley for one of the elevator cables was deformed but did not displace the alignment of the cable travel.

Preliminary Recommendations

- Complete a Risk Analysis for use of any backcountry airstrip.
- FHP review/develop communications plan for remote areas. Suggest handheld radios or satellite phones.
- Include in Aviation Training programs, procedures for aviation users not to fly on aircraft with maintenance deficiencies or aircraft involved in a mishap.
- Review Safety Alert dissemination procedures. (Safety Alert had gone out the week prior to the mishap on flying aircraft with maintenance deficiencies but was not distributed throughout the FHP community)
- Review pilot evaluation check ride intervals, currently there is no policy in place.

NTSB Identification: **LAX06GA254**
Date: Friday, August 04, 2006 at Happy Camp, CA
Region 5, Klamath NF
Aircraft: Aviation International Rotors CH-54A, N6156U
Injuries: 2 Fatal

Mission

The aircrafts mission was to support fires within the Happy Camp complex with aerial support dropping water/foam.

On the morning of the accident, the helicopter went through a series of maintenance flight tests after having its number one engine replaced the night before. The helicopter was returned to service at 1645 by the contractor mechanics and the USFS Aircraft Maintenance Inspector.

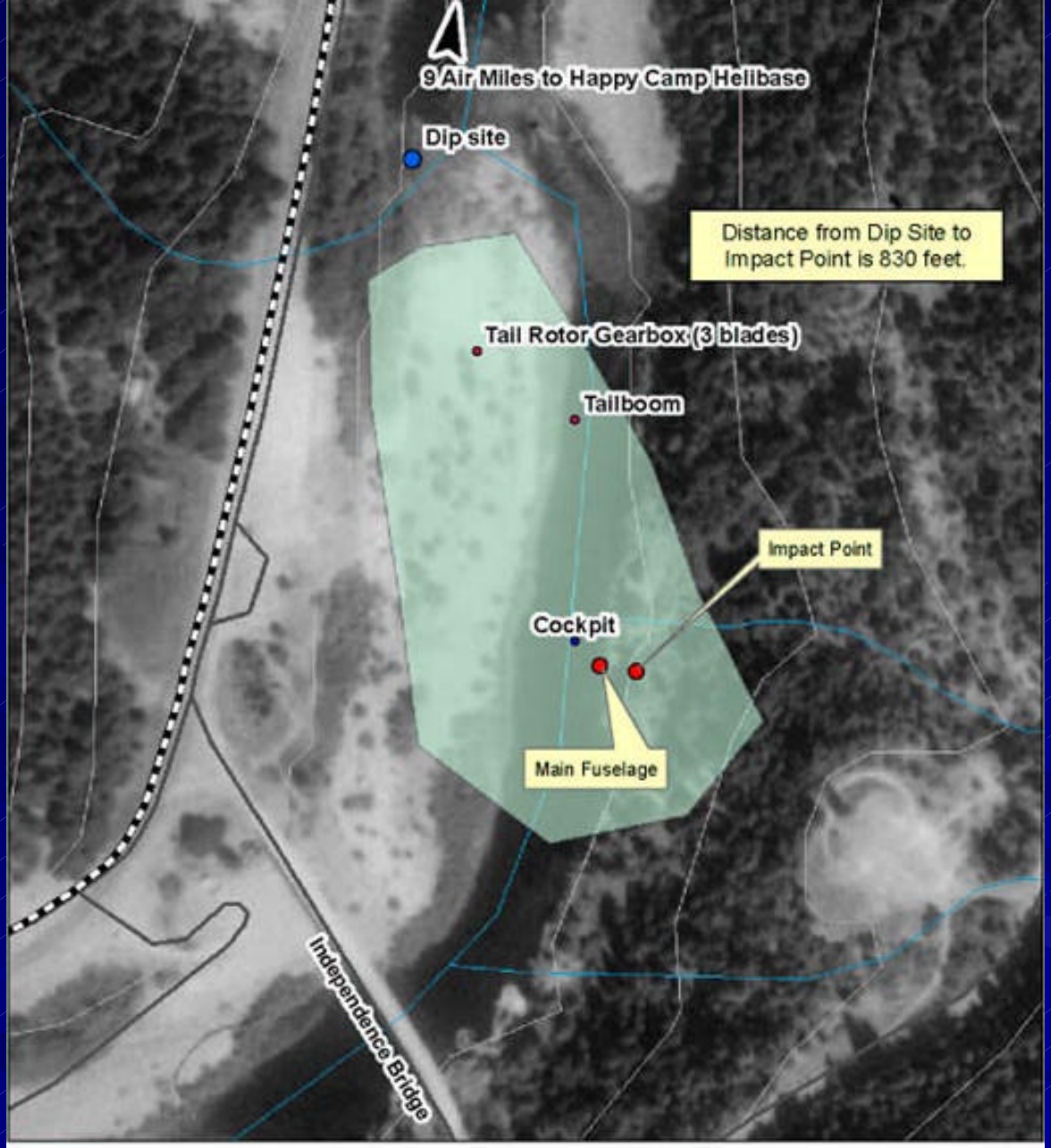
The helicopter was then dispatched to the Titus fire where it conducted a number of water drops. After 2.2 hours of flight (at 1902), the helicopter returned to the helibase where it was refueled with approximately 500 gallons and examined by maintenance personnel. The helicopter departed for a second cycle of water drops at 1912, and never returned to the helibase.

Automated Flight Following indicated that the helicopter filled its water tanks at a dip site located in the Klamath River near the Independence Bridge. The helicopter conducted one uneventful dip and water drop during the second cycle and was in the process of conducting its second dip when the accident occurred.

A witness located near the accident site reported that he observed the helicopter come in and out of the same dip site that day filling the helicopter's water tanks. The helicopter was located over the dip site when the witness heard a "loud bang."

The witness observed the helicopter flying over a stone riverbed toward the Independence Bridge. He then noticed a large piece fall off the helicopter, which was later identified as the tail rotor gearbox with three of the four tail rotor blades attached to the hub.

The helicopter pitched nose low at an approximate 45-degree nose down attitude while rotating around its vertical axis. The helicopter impacted the opposite side of the river/shoreline. The witness immediately called the USFS to report the accident.


9 Air Miles to Happy Camp Helibase
Dip site
Distance from Dip Site to Impact Point is 830 feet.
Tail Rotor Gearbox (3 blades)
Tailboom
Impact Point
Cockpit
Main Fuselage
Independence Bridge
0
250
500
Feet
Accident Debris Field
Roads
State Highway 96
Streams
Contour Interval 80'

There are four tail rotor blades in the tail rotor assembly. Attached to the tail rotor hub is a spindle for each blade.

Each blade is identified by a colored-coded attachment collar and spindle/sleeve (red, yellow, blue, and black).

Examination of the tail rotor system revealed that the blade associated with the red collar/spindle was missing and has not been located. The spindle was fractured inboard of where the sleeve assembly would attach to the spindle. It was noted that the location of the fracture would not normally be visible in an assembled component.

The fractured spindle was removed from the tail rotor hub and shipped to the National Transportation Safety Board Materials Laboratory in Washington, D.C., for further examination.

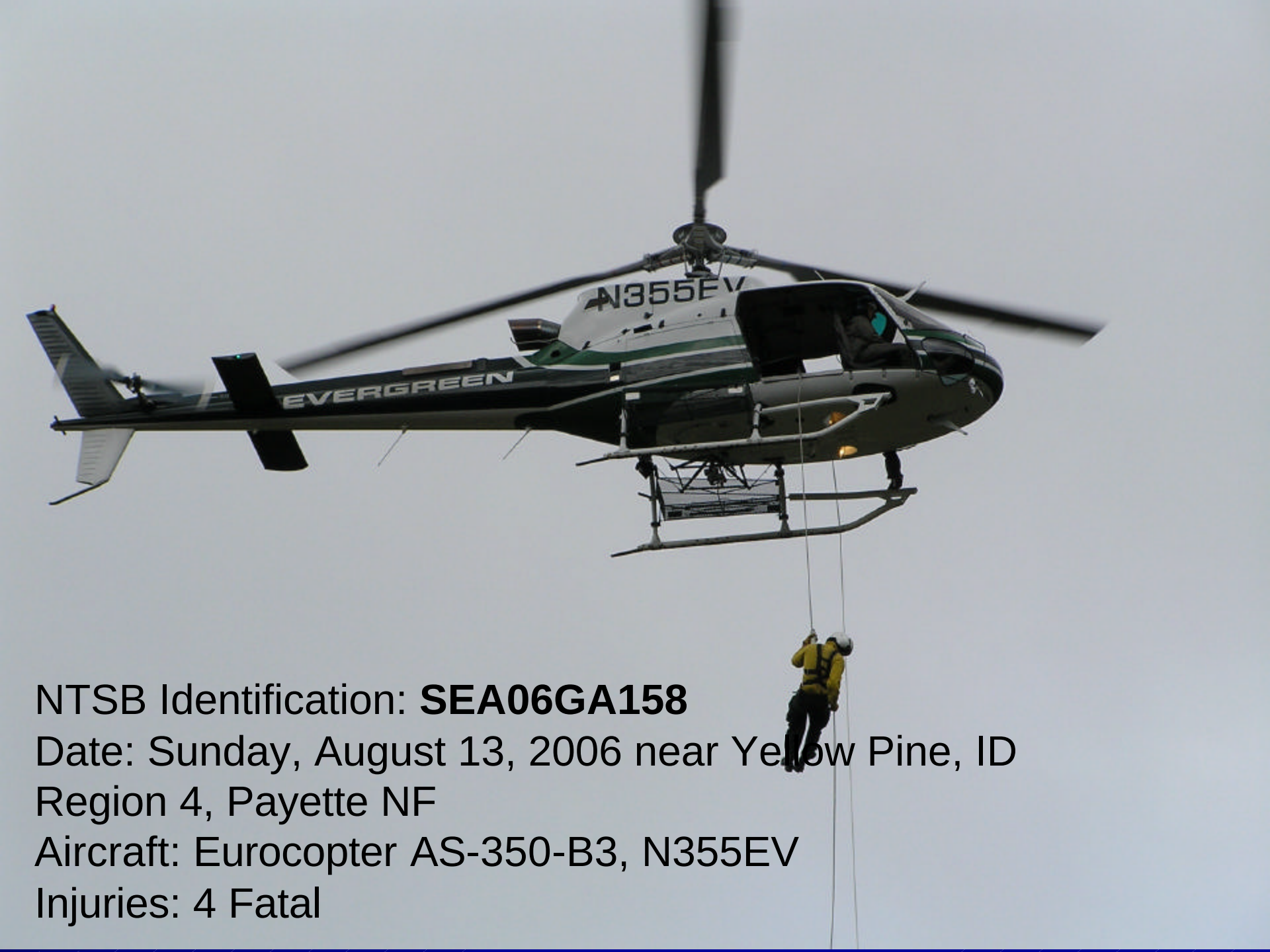
Initial review of the maintenance records, flight logs, and USFS daily diaries revealed that the helicopter accumulated a total of 6,191.6 hours.

On December 22, 2005, the tail rotor hub assembly underwent a overhaul, which included the fluorescent penetrate inspection of the spindle.

The tail rotor hub assembly accumulated about 323.6 hours following its last overhaul. The spindle was not a life limited component.

Preliminary Recommendations

- Review the maintenance performance of this contractor.
- Review our Forest Service procedures and our ability to follow through when concerns are identified.
- Assure the Region has action plans to implement findings of systems reviews and appropriate oversight to assure compliance with action items.



NTSB Identification: **SEA06GA158**
Date: Sunday, August 13, 2006 near Yellow Pine, ID
Region 4, Payette NF
Aircraft: Eurocopter AS-350-B3, N355EV
Injuries: 4 Fatal

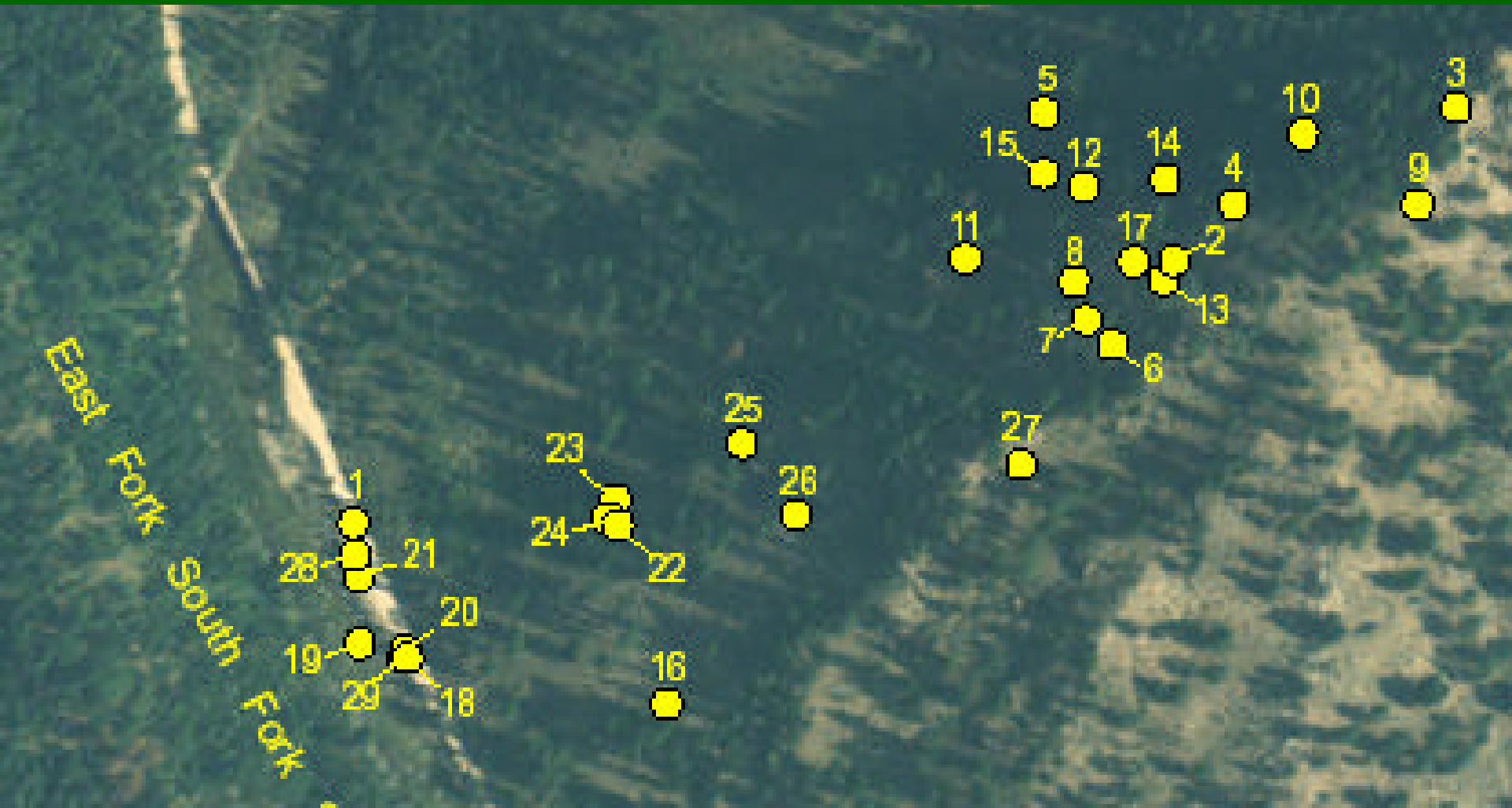
Mission

Replace lookout personnel on Williams Peak Lookout, located approximately 4 nautical miles north, north-east from Krassel helibase.

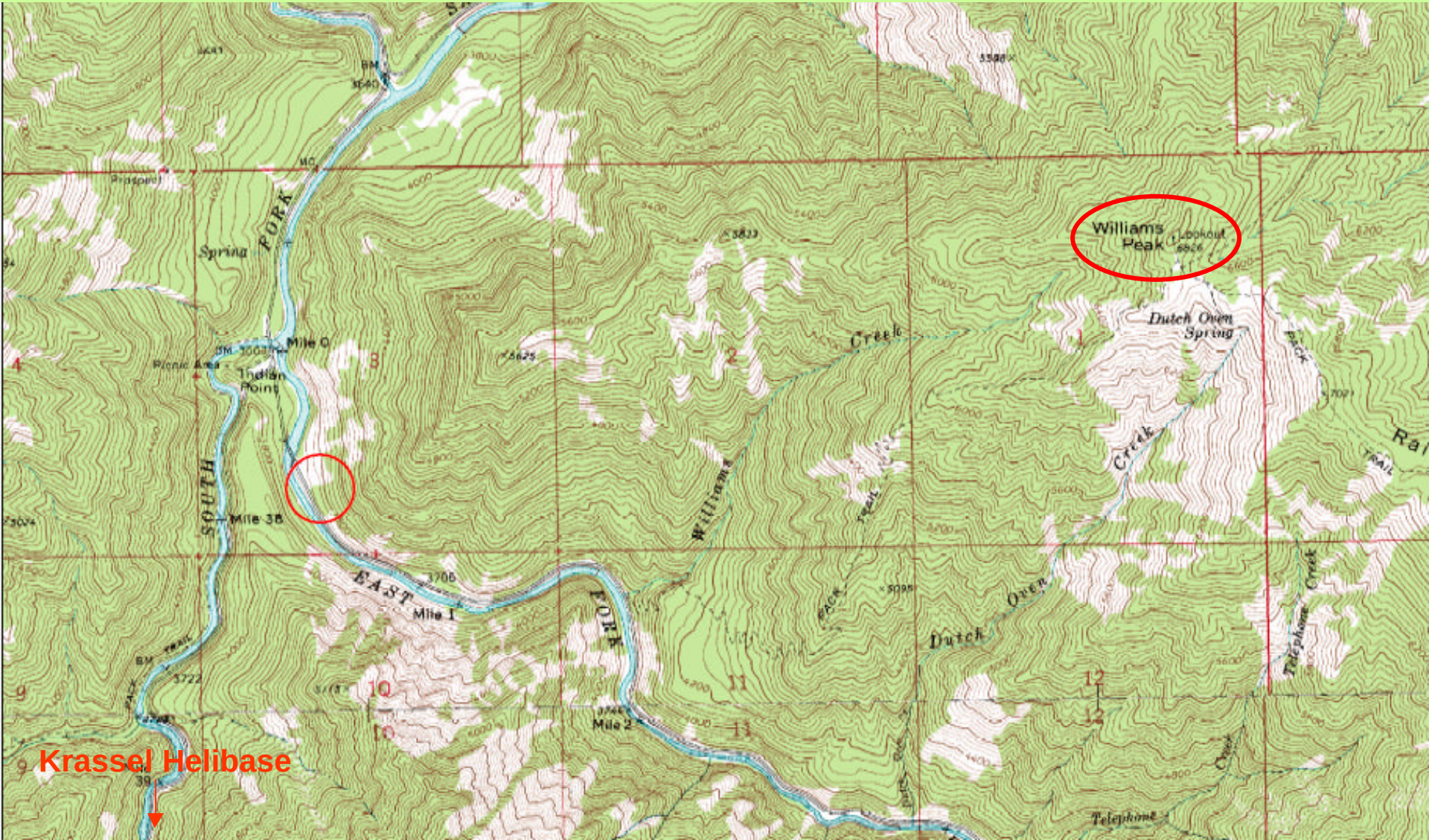
The aircraft was destroyed by fire following impact with the East Fork Rd. (FS Rd. 48) about 18 miles west of Yellow Pine, Idaho. The commercial pilot and three passengers were fatally injured.

The exchange of lookout personnel had occurred, and the helicopter was returning to Krassel helibase when the accident occurred.

Debris Field



AREA MAP


Williams Peak
Lookout
Dutch Oven Spring
Creek
Mile 0
Indian Point
Picnic Area
SOUTH FORK
Spring
Mile 38
EAST FORK
Mile 1
Mile 2
Williams Creek
Dutch Oven Creek
Telephone Creek
Krassel Helibase

The debris included the tail-cone with its vertical and dorsal fins, the tail rotor gear box cover, one tail rotor blade, the top half of the upper wire cutter, and several five gallon potable water containers (cubies), and other miscellaneous refuse.

Preliminary Recommendations

- The preliminary recommendations are not available at this time.

NTSB Identification: **LAX06TA284**
Date: Monday, September 04, 2006 at Happy Camp, CA
Aircraft: Bell 212, N873HL
Region 5, Klamath NF
Injuries: None

Mission

The aircraft was delivering a longline load of cargo to the Titus fire from the Happy Camp Helibase.

Just after departing the Happy Camp Helibase the pilot smelled smoke. He immediately turned back towards the base and called on the radio to ask if they could see smoke from the aircraft. He then got an engine fire warning light on the annunciator panel. Pilot quickly got to a safe location and jettisoned the longline, pulled the engine fire extinguisher and landed the aircraft.

The interior of engine compartment suffered major heat damage affecting the firewall and engine compartment deck due to escaping turbine gases.

A post-landing examination of the helicopter revealed that a puncture from the inside out existed in the hot section of the right engine. The engine compartment, engine deck, firewall, cowling attachment point, and other accessories on the right side of the helicopter sustained damage.

Initial engine teardown analysis determined an internal engine component failure. The engine manufacturer, FAA and NTSB are doing further analysis and metallurgy tests.

Preliminary Recommendations

- There are no recommendations at this time, waiting for tear down analysis results.

NTSB Identification: **LAX07TA001**
Accident occurred Sunday, October 01, 2006 in Ojai, CA
Aircraft: Sikorsky 64E, N189AC
Region 5, Los Padres NF

Mission

The aircraft was supporting Division CC with retardant drops and was to empty the portable retardant tanks at Rose Valley

The helitanker was picking up it's 6th load of retardant, it had drafted the last 200 gallons from the retardant tank and opted to top off the load with remaining water from the rinse tank. As the helitanker maneuvered from the retardant tank to the rinse tank the pilot misjudged the height of the snorkel, below the top of the tank.

The snorkel became lodged to the tank between the tank band and the lifting eye. The nose of the aircraft went down and the pilot pulled back on the cyclic and applied power

The nose of the aircraft came up but was in a left bank with a high nose up attitude, the tail stinger contacted the ground and the aircraft spun around to the left. On this first rotation, the tail rotor blades contacted the retardant tank; two of the blades (symmetrically) depart the aircraft

The aircraft continued to spin (2nd rotation), the tail rotor head contacted the retardant tank a second time breaking off the 90 degree tail rotor gearbox, and also breaking off the last 1/3 of the tail boom.

The aircraft's right main gear contacted the ground hard enough to break it off. The aircraft rolled right striking the main rotor blades.

Both pilots walked away from the aircraft with only scrapes and bruises. The pilots were transported to a local hospital for evaluation and released later that day.

Preliminary Recommendations

1. Request manufacturers of portable helicopter retardant/water tanks (PRT) to inspect and modify tanks that may have edges or protrusions.

2. Request the manufactures of “snorkels” to inspect and modify any snorkels to remove edges or protrusions that would catch a PRT.

   This may involve working with helicopter contractors and PRT contractors in a collaborative effort to reduce the opportunity of such an occurrence from happening again. Suggest development of inspection criteria and standards for these tanks and snorkels.

Recommendations Continued

3. Develop an Interagency Aviation Safety Alert warning pilots of the possibility of an entanglement or lodging of snorkels/buckets on PRTs that may have edges or protrusions. Suggest contractors develop and train pilots in emergency procedures in the event their snorkel/bucket becomes entangled or lodged.

4. Request review of helicopter inspector pilot contractor carding procedures to include “Vertical Reference” to the “Retardant/Water Dropping” endorsement of the contractor’s pilot card due to vertical reference maneuvering for the fixed-tank helicopters dipping operations. Include in the Interagency Helicopter Practical Test Standards procedures for “Snorkel Operations”.

Recommendations Continued

5. Request an evaluation of the procedures to quantify initial pilot flight times when a contractor is submitting a “first-time” pilot for all FS missions.

6. Request contracting officer add contract language to include: “Contractor endorse the pilot’s application verifying the pilots time”.

7. Request contracting officer add procedures to have contractor remove and recycle unused retardant at bases.

Incidents With Potential

- June 26, Cessna 210L, Northeast Area State and Private Forestry.
  - Gear-up landing after providing aerial supervision on a aerial spray project.
- July 26, Los Padres NF.
  - Near miss between Aerial Supervision Module and Helitanker.
- September 4, Boise NF
  - Near miss between Helitanker and Kmax

Incidents With Potential
Continued

- September 9, Bell UH1H, Gallatin NF
  - Engine failure, emergency landing in river
- September 9, Airtractor, Boise NF
  - Forced landing due to fuel starvation
- September 26, Bell 206 L4, Okanogan & Wenatchee NF
  - Main rotor blade strike

Lessons Learned

- Human factors contributed to each of the accidents in 2006
- Risk assessment can help reduce accidents
- Situational awareness and hazard identification are key prevention tools