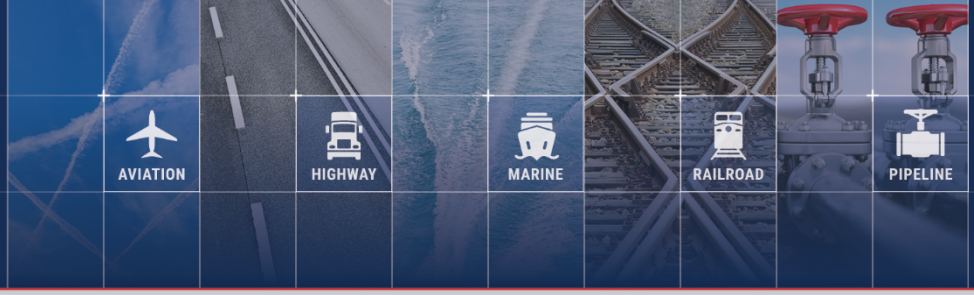

Aviation Investigation Final Report

Location:	DESERT AIRE, Washington	**Accident Number:**	SEA99TA010
Date & Time:	November 6, 1998, 12:25 Local	**Registration:**	N756YE
Aircraft:	Cessna TR182	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 Fatal, 1 Serious
Flight Conducted Under:	Public aircraft		

Analysis

Approximately 4 hours into a U.S. Fish and Wildlife Service (USFand WS) low-level waterfowl survey flight along the Columbia River, while flying down river (eastbound), the aircraft struck a static line on a power line crossing the river and crashed into the river. The pilot escaped the aircraft with serious injuries, but two USFand WS employees aboard the aircraft, acting as observers for the waterfowl survey, did not escape the submerged aircraft and drowned. The pilot reported that at the time of the wire strike, he saw the transmission lines and towers and was climbing to clear the transmission lines, but that he was unaware of the smaller-diameter static line's presence above the transmission lines and did not see it. The aircraft struck the static line 122 feet above the surface. The static line, the highest wire on the structure, was not marked according to current FAA standards. An FAA aerial survey of the crossing conducted after the accident revealed that while an adjacent power line crossing approximately 1/4 mile east of the accident crossing was conspicuously marked and lighted, the lines which were struck were very difficult to see even in good visibility conditions.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to maintain adequate altitude and/or clearance over a power line crossing the river, resulting in collision with a static wire at the top of the crossing structure. Factors included the static wire, and inadequate marking of the static wire.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: CRUISE

Findings
1. (F) OBJECT - WIRE,STATIC
2. (F) UNSAFE/HAZARDOUS CONDITION WARNING - INADEQUATE - OTHER GOVERNMENT PERSONNEL
3. VISUAL/AURAL DETECTION - PILOT IN COMMAND
4. (C) ALTITUDE/CLEARANCE - NOT MAINTAINED - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Factual Information

On November 6, 1998, approximately 1225 Pacific standard time, a Cessna TR182, N756YE, operated by Kennewick Aircraft Services Inc. of Kennewick, Washington, under contract to the U.S. Fish & Wildlife Service as a public-use waterfowl survey flight, struck power lines across the Columbia River near Desert Aire, Washington, and subsequently crashed and sank into the river. The airplane was substantially damaged in the wire strike and subsequent water impact. After the airplane sank to the river bottom (approximately 15 feet deep), the commercial pilot-in-command of the aircraft was able to escape the aircraft and was rescued by a boat on the river, but sustained serious injuries in the accident. Two U.S. Fish & Wildlife Service employees aboard the aircraft, who were acting as observers for the waterfowl survey, did not escape the submerged aircraft and were fatally injured. The flight departed Vista Field, Kennewick, Washington, and was to have been a local flight. Visual meteorological conditions prevailed at the time, and a company visual flight rules (VFR) flight plan had been filed.

The operator possessed an FAA waiver from the minimum altitude requirements of 14 CFR 91.119(c). This waiver authorized the pilot to operate at altitudes below 500 feet above ground level (AGL) on aerial survey flights, provided aircraft were not operated closer than 500 feet to persons on the surface. The pilot reported that the accident occurred after approximately 4 hours of low-level survey flight, while the airplane was flying downriver (eastbound in the accident area). Sky conditions reported at 1150 at the Hanford, Washington, weather observation facility (9 nautical miles southeast of the accident site) were: few clouds (up to 2/8 sky cover) at 800 feet; scattered clouds at 25,000 feet; and visibility 15 statute miles. The pilot reported:

...I clearly observed the towers and transmission lines associated with the most upriver (western most) lines. I climbed to an altitude that would clear the first set of transmission lines and continued the climb to safely clear the downriver set of transmission lines, which are slightly higher.

I was at approximately the same altitude as the tops of the upriver towers as I crossed over and clear of the transmission lines, climbing at approximately 80 KIAS [knots indicated airspeed]. At that point, the aircraft stuck [sic] something, came to a stop and fell to the river.

...the aircraft...struck an unmarked 5/8 inch diameter static line running between the tops of the upriver set of towers. I was not generally aware that transmission towers had lines running between the towers other than the transmission lines. I have never seen the static line on the towers in question and did not see it at any point before or during the strike. The static line was not marked with balls or other devices to aid its detection....

The pilot reported on his NTSB accident report that no mechanical failure or malfunction was involved in the accident.

The airplane struck static/ground support wires strung between the tops of the upriver power line support towers, where the power lines cross the river between the Priest Rapids Dam and the Vernita Bridge (where Washington state highway 24 crosses over the river) approximately 2 miles west of the Vernita Bridge. There are two groups of transmission lines which cross over the river at this point: a westernmost (upriver) group mounted on towers 194 feet high (according to blueprint data), owned by the Grant County, Washington, Public Utility District (PUD), and an easternmost (downriver) group on taller towers, owned by the Bonneville Power Administration (BPA). (NOTE: According to FAA and Cessna investigators who assisted in the on-scene investigation, the aircraft contacted the wires at 122 feet above the surface.) The Grant County and BPA crossings are approximately 1/4 mile apart. The transmission line support towers on each river bank are depicted as group obstructions on the Seattle Sectional Aeronautical Chart, with the chart depicting the towers as being 280 feet AGL. The transmission line crossing where the accident occurred is also depicted on hazard maps prepared by local U.S. Fish & Wildlife Service employees in accordance with U.S. Department of the Interior procedures for conducting low-level aerial survey flights (the locally prepared hazard maps for this area, copies of which were furnished to the NTSB by the U.S. Department of the Interior, are based on the Seattle Sectional Aeronautical Chart.)

The power lines and supporting structures of the crossing involved in the accident are not of sufficient height to be considered obstructions to air navigation according to the criteria of 14 CFR 77.23. Correspondence regarding the construction of the Grant County PUD power line crossing (furnished to the NTSB by the Grant County PUD) indicated that the Grant County PUD inquired as to marking and lighting requirements for the structure to the Civil Aeronautics Administration (CAA), predecessor to the FAA, in a letter dated April 25, 1957. The CAA responded in a letter dated May 9, 1957, that since the crossing was entirely within a prohibited area (P-246), which at that time was controlled by the U.S. Atomic Energy Commission (USAEC), the USAEC should be contacted regarding their requirements or desires regarding marking and/or lighting of the crossings. The Grant County PUD subsequently made this inquiry to the USAEC in a letter dated May 20, 1957. The USAEC responded, in a letter dated June 6, 1957, that since the construction was to be adjacent to existing BPA lines which were already lighted, lighting the towers was not necessary, but that the towers should "be painted in accordance with [CAA] standards." Prohibited area P-246 was no longer active at the time of the accident.

Current Federal Aviation Regulations require proponents of new construction to notify the FAA of all structures proposed to be built to a height of 200 feet AGL or higher, and current FAA orders direct the FAA to recommend to proponents that an object proposed to be constructed between 200 feet AGL and 500 feet AGL be marked and/or lighted according to the standards of FAA Advisory Circular (AC) 70/7460-1J, "Obstruction Marking and Lighting." Marking standards contained in AC 70/7460-1J generally specify placement of conspicuously-colored (e.g. aviation orange, white, or yellow) spherical markers of not less than 36 inches diameter

(or other shape markers of equivalent projected area), at intervals not to exceed 200 feet, on the highest wire of catenary structures which cross rivers.

On August 17, 1999, an airspace specialist from the FAA's Northwest Mountain Region Air Traffic Systems Management Branch, Renton, Washington, conducted an inflight evaluation of the marking and lighting of the power line crossing involved in the accident. The FAA airspace specialist reported to the NTSB that while the adjacent BPA power line crossing was marked and lighted "for very good conspicuity", the Grant County PUD lines (the lines which the accident aircraft struck) were very difficult to see even in good visibility conditions. The FAA specialist reported that during the inflight evaluation, he never spotted the static line on the Grant County PUD power line crossing. (NOTE: According to an FAA inspector in the Spokane, Washington, Flight Standards District Office [FSDO], the static wire which was struck was not replaced after the accident, and only one static wire was in place at the time of the FAA airspace specialist's survey.)

The Grant County, Washington, coroner reported to the NTSB that the cause of death for both fatally injured aircraft occupants was determined to be drowning. Toxicology tests performed on the pilot following his admission to hospital for emergency treatment did not disclose the presence of any ethanol or drugs in the pilot at the time of the accident.

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	42,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane single-engine; Instrument airplane	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	October 19, 1998
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	5244 hours (Total, all aircraft), 2000 hours (Total, this make and model), 5204 hours (Pilot In Command, all aircraft), 320 hours (Last 90 days, all aircraft), 85 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N756YE
Model/Series:	TR182 TR182	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	R18201194
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	November 1, 1998 100 hour	**Certified Max Gross Wt.:**	3100 lbs
Time Since Last Inspection:	10 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	5170 Hrs	**Engine Manufacturer:**	Lycoming
ELT:	Installed	**Engine Model/Series:**	O-540-L3C5D
Registered Owner:	KENNEWICK AIR SERVICES INC.	**Rated Power:**	235 Horsepower
Operator:	U.S. FISH & WILDLIFE SERVICE	**Operating Certificate(s) Held:**	On-demand air taxi (135)
Operator Does Business As:		**Operator Designator Code:**	K3WA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:		**Distance from Accident Site:**	
Observation Time:		**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	0°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:		**Temperature/Dew Point:**	4°C / 2°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	KENNEWICK , WA (S98)	**Type of Flight Plan Filed:**	Company VFR
Destination:		**Type of Clearance:**	None
Departure Time:	08:30 Local	**Type of Airspace:**	Class G

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	2 Fatal, 1 Serious	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal, 1 Serious	**Latitude, Longitude:**	46.720344,-119.729537(est)

Administrative Information

Investigator In Charge (IIC):	Nesemeier, Gregg
Additional Participating Persons:	JOHN J BIANCO; SPOKANE , WA SETH D BUTTNER; WICHITA , KS LARRY BROSNAN; BOISE , ID
Original Publish Date:	September 28, 2000
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=45314