



NTSB National Transportation Safety Board

Office of Aviation Safety

**Maryland State Police
Trooper 2
District Heights, MD**

Jill Demko

Operations Group Chairman

Malcolm Brenner, Ph.D.

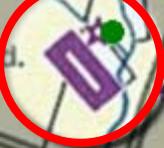
Human Performance Group
Chairman

Pre-flight Weather Evaluation

- Pilot obtained weather briefing at 1851
- VFR conditions forecast for ADW until 0100
- Weather at time of launch within MSP and FAA weather minimums

800 broken;
10 mi visibility

IFR →



← PGH

PGH



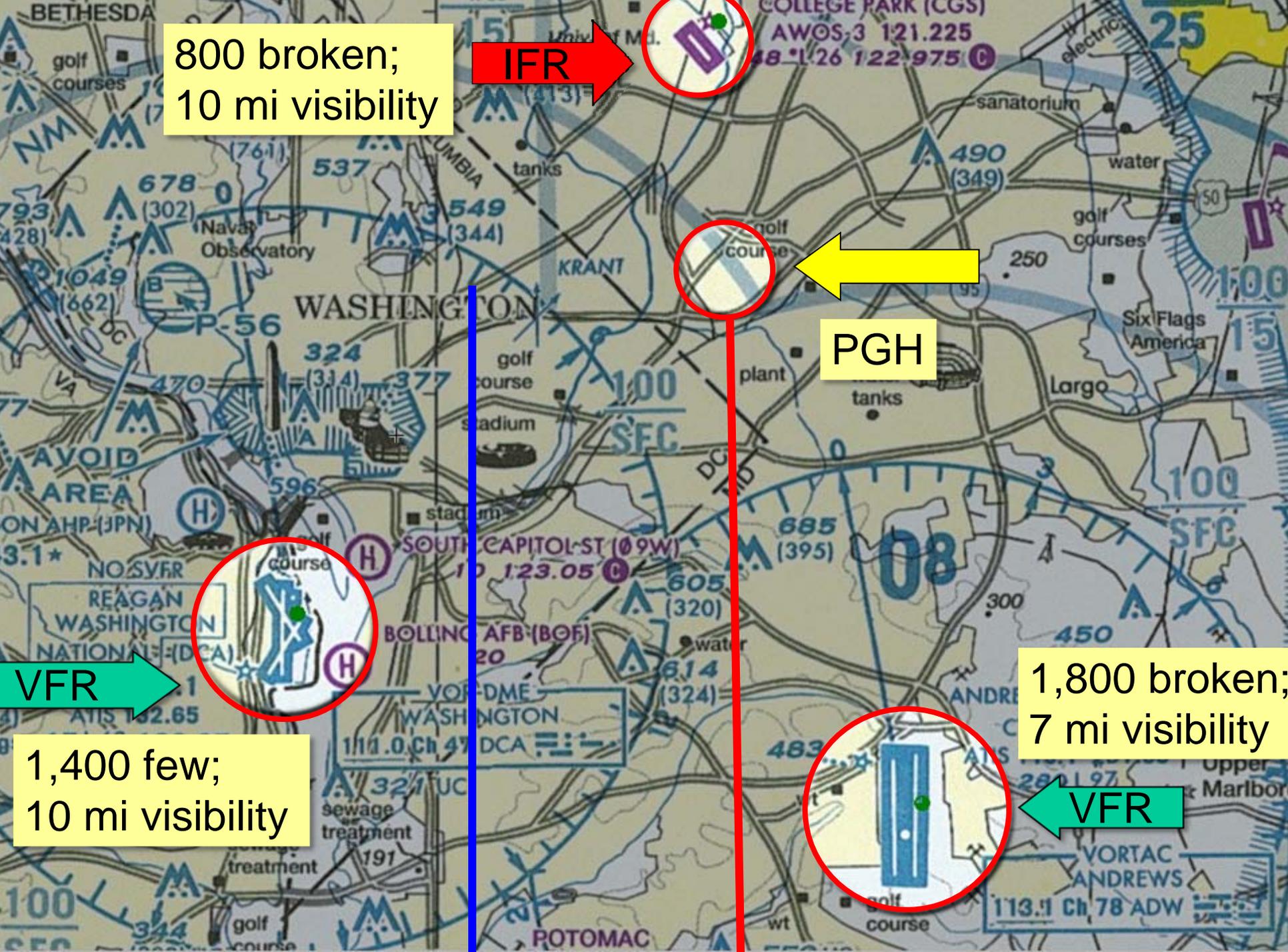
← VFR

1,400 few;
10 mi visibility

1,800 broken;
7 mi visibility



← VFR



Risk Assessment

- Single-pilot operation
- Risk assessment matrix existed
- Not required to be used

Pilot Experience

- Commercial pilot certificate
 - Instrument rating
 - Rotorcraft-helicopter rating
- Flight instructor certificate
 - Instrument rating
 - Rotorcraft-helicopter rating
- 27 years, 2,700 hours in accident helicopter
- 1.9 hours actual instrument time in previous 2 years

MSP Instrument Training

- Instrument training program change 10 months prior to accident
- Previously: 6 approaches every 6 months
- At time of accident: 2 instrument proficiency checks per year
- Training program change
 - 20 approaches prior for pilot
 - 4 approaches after for pilot

Instrument Approach

- Helicopter aligned with glideslope despite pilot's report of glideslope failure
- No evidence of glideslope malfunction
- FAA and MSP guidance dictate ILS becomes LOC approach after loss of glideslope
- Minimum descent altitude assures terrain clearance
- Many options available to pilot

Terrain Awareness and Warning System

- MSP had 3 TAWS equipped helicopters in fleet
- Accident helicopter not equipped with TAWS
- If equipped, pilot would have received 3 warnings:
 - 7 seconds: Caution terrain
 - 4 seconds: Warning terrain
 - 2 seconds: Pull up

Public vs. Civil Aviation Operations

- HEMS flights conducted by civil and public operators
- Civil HEMS flights under Part 135
- Public HEMS flights exempt from most FAA regulations and oversight
- FAA safety oversight discrepancy

Workload Issues

- Time pressure to deliver patients
- Actual instrument conditions
- Air traffic issues
- Possibility of flying below cloud cover

Performance

- No gross deficiencies in alertness or responsiveness
- Performance below his normal standards

Fatigue Evaluation

- Late hour
- Awake 16 hours
- Sleep disorder risk factors
- Routine sleep history
- Rest facilities/coffee available
- Fatigue may have contributed to pilot's deficient performance



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