

National Transportation Safety Board

Office of Aviation Safety

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OPERATOR SCHEDULING PRACTICES

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A. ACCIDENT

Location: Abingdon, Virginia
Date: March 6, 2022
Time: 2359 local
Airplane: Eurocopter Deutschland GMBH MBB-BK-117 C-2 (N29VA)

B. SUMMARY

On March 6, 2022, at 2359 eastern standard time, a Eurocopter Deutschland GMBH, MBB-BK-117 C-2 helicopter, N29VA, was substantially damaged when it was involved in an accident at the Virginia Highlands Airport (VJI), Abingdon, Virginia. The pilot sustained serious injuries and the two flight paramedics were not injured. The helicopter was operated by the Virginia Department of State Police as a public state aircraft.

C. DETAILS OF THE INVESTIGATION, SCOPE OF REPORT

The Virginia Department of State Police (VSP) Aviation Division's scheduling practices and standard operating procedures (SOPs) were reviewed during this accident investigation. The pilot in command's recent flight activity and sleep history were also reviewed. This report details the factual findings pertaining to these subject areas.

D. THE OPERATOR & MISSION

According to the commander of the aviation division within VSP, VJI Airport, Abingdon, Virginia is one of three operating bases in the state. The other two bases are located in the area of Lynchburg and Richmond, Virginia. The primary mission at the Abingdon Base was public emergency medical evacuation flights (Med-Flight) and law enforcement operations. The medical evacuation flights are at no cost to the evacuee. The VSP provides the helicopters and pilots, and local hospital network's staff the flight nurses. The accident helicopter was one of multiple helicopters operated from the VJI base. The aviation division commander reported that all flight operations conducted by VSP are considered Public Use¹ operations.

E. PILOT SCHEDULING

According to the commander of the aviation division and review of VSP scheduling SOPs, pilots assigned to Med-Flight operations worked 24.3 hour duty

¹ All VSP Aircraft are considered Public Aircraft and operate under Public Use Operations, which are not required to follow Part 61, 91, or 135 Federal Aviation Regulations as applicable to civil aircraft.

shifts. The length of the shift was due to the number of qualified pilots on staff and the need to maintain 24 hours of operational coverage.

The standard shift began at 0800 and ended 0820 the following day. The SOPs allowed for up to 10 hours of task time. Task hours were defined as the time necessary to complete the entirety of the flight, including preflight, the flight time, post-flight, and post-flight paperwork.

Should mission needs require a pilot to exceed 10 hours of task time, the base commander must be contacted, and the aviation division supervisor and pilot must agree to extend the 10 hour limit to 12 hours. If working during a police shift (excluding medical flights), task time may be extended up to 14 hours with Aviation Division supervisor and pilot agreement. The SOPs called for a minimum of two scheduled days off per week with no calls or responsibilities in order to prevent fatigue among the pilots.

F. THE PILOT'S SCHEDULE & RECENT ACTIVITY

The pilot in command provided a detailed account of his recent sleep and flight activity in the days preceding the accident. The pilot was on duty from 0800 on March 4 until 0820 on March 5. During this shift, a total of three calls were issued. The last call occurred at 2110 but was cancelled and he returned to base at 2132. There were no further calls for the night and he reported falling asleep at 2300. On March 5, the day before the accident, the pilot woke up at the VSP base at 0700. After his shift ended, he departed work at 0900 and had no further duties that day. He reported conducting family activities throughout the day and went to bed at 2300.

On the day of the accident, the pilot woke up at home at 0630 and subsequently arrived at VJI airport around 0800 to begin his Med-Flight 24.3 hour shift. The pilot reported a detailed breakdown of the flight activity conducted on the day of the accident. Based upon pilot reported flight activity and task hours, the total task time was 8 hours and 27 minutes² across five mission flights. The total duty shift period, from the time he began the duty period at 0800 until the accident time was 15 hours and 59 minutes. The pilots total awake time the day of the accident was 17 hours and 29 minutes, and he reported that he did not nap during the shift. Figure 1 displays an overview of the schedule and flight activity.

² The task time did not exceed the 10 hour limit in which supervisor and pilot approval would have been needed to work up to 12 hours of task time.

*Pilot Shift Begins 0800							
Flight	Time of Request	Liftoff Time	Arrival to Scene	Depart Scene	Arrival to Hospital	Time back at Base (VJI)	Total Time
Med-Flight #1	8:55	9:02	9:14	9:28	9:42	10:18	1:23
Med-Flight #2	13:35	13:45	14:06	14:21	14:33	15:36	2:01
Med-Flight #3	16:46	17:00	17:09	17:24	17:53	18:25	1:39
Med-Flight #4	19:10	19:22	19:38	19:52	20:07	20:40	1:30
Med-Flight #5	22:05	22:17	22:41	22:59	23:16	23:59	1:54
						TOTALS	HH:MM
						Total Task Time	8:27
						Total Duty Shift Elapsed Time	15:59
						Total Time Awake	17:29
Flight	Call Details						
Med-Flight #1	Scene Call - Cleveland, VA to Bristol Regional Medical Center						
Med-Flight #2	Scene Call - Dickenson Co to Pikeville Medical Center						
Med-Flight #3	Hospital Call - Russell Co. Medical Center to Johnson City Medical Center						
Med-Flight #4	Scene Call - Johnson Co., TN to Johnson City Medical Center						
Med-Flight #5	Hospital Call - Lonesome Pine Medical Center to Holston Valley Medical Center						

Figure 1: Detailed history of schedule and flight activity on the day of the accident.

During postaccident interviews, the pilot reported that he could not recall ever exceeding 10 hours of task time with VSP. He reported that there is “no pressure” from supervisors to accept a mission if you are tired. He added that if he felt tired before the accident flight, he would have reported this to his supervisors and he would not have conducted the flight. The pilot was asked if he believed he was fatigued during the accident flight. He did not believe fatigued played a factor and recalled that despite having five missions throughout the day, he did not “feel too bad.”

G. AVIATION FATIGUE RESEARCH

Research has shown that performance decrements can occur after 17 hours of continuous wakefulness (Dawson & Reid³, 1997); additionally, flying multiple flight segments can be more fatiguing than flying a single, longer segment (Avers & Johnson⁴, 2011).

³ Dawson, D., & Reid, K. (1997). Fatigue, alcohol and performance impairment. *Nature*, 388(6639), 235-235.

⁴ Avers, K., & Johnson, W. (2011). A review of Federal Aviation Administration fatigue research: Transitioning scientific results to the aviation industry. *Aviation Psychology and Applied Human Factors*, 1(2), 87-98.

H. THE OPERATOR'S REVISED SCHEDULING PRACTICES

The commander of the aviation division reported in a signed letter that multiple scheduling SOPs had been revised following the accident. He reported that VSP eliminated 24.3 hour pilot shifts at each Med-Flight base. The VJI Med-Flight revised its scheduling practices to operate under 12 hour pilot shifts. Other bases have pilots working no more than 16 hour shifts, while additional pilots can be hired and trained.

Report submitted by:

Adam Gerhardt
Senior Air Safety Investigator